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SKETCH OF THE ORIGIN, DEVELOPMENT, AND PROBABLE DESTINY OF THE RACES OF MEN[1]

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In early times the problems of humanity were solved as soon as presented. The fathers settled all questions of the past and present off-hand, and the creeds formulated were blindly accepted by a credulous world; but modern thought has passed beyond these primitive methods, and the history of mankind has taken its proper place in the general plan of life and evolution. Long ago the Greeks, and others, no doubt, had glimpses of the true position of man in the scheme of nature, but the body of independent thinkers was too small to leaven the vast lump of traditional error. Students are now, however, more favorably situated, and are making gratifying headway in the comprehension of man and his relations to the universe. They are working their way backward along the devious course of his coming, and dare to glance forward in the direction of his going. They have learned much of the present and have had many glimpses into the less

[1] Address of the retiring President of the Anthropological Society of Washington, delivered under the auspices of the Washington Academy of Sciences, February 11, 1902.

remote past, while of the far-away past and the deeply shrouded future less vivid impressions are gained.

The attempt to compass so vast a subject is necessarily fraught with great difficulties. There is no adequate viewpoint for such an extended panorama. It is a rule of pictorial art that in order to comprehend the subject clearly the artist's eye must be distant from the picture twice or thrice its width. It is almost equally true that to properly rate the career of an individual one must be generations away, or, if of a race of men, at an indefinitely vast distance. Today, fortunately, the phenomena of the universe are viewed with the eyes both of the past and of the present. The history of nations is seen, as it were, with the eyes of all mankind, with the collective vision of all experience, and the accumulated wisdom is utilized in reading the past and in forming a picture of the future.

From the vantage point that geology furnishes it is seen that many races of creatures have come and gone; have had a beginning, a gradual expansion, and a grading off to extinction or into other forms; and, on closer study, this is found to be a law of all things, animate and inanimate, so nearly universal that an exception may not readily be found. The individual of all creatures, physically speaking, passes through a highly organized form and returns to dust; the families of creatures rise, expand, and vanish; worlds do the same. Nothing is stable save the cause and the laws of change. Unceasing change is the rule of nature; nothing that now is can be the same the second following, and it is only a question of time when transformation shall overtake the individuals, the races, and the worlds.

As my subject is a vast one I shall try to paint it with a broad and sketchy brush, and with the aid of pictures and diagrams will present and emphasize some of the greater truths of man's condition and history, and of man's speculations about man.

Summoning the whole human family into the field of vision, we behold a motley array of fourteen hundred and eighty millions

of creatures called men. Taking a hasty survey we find them assembled on the various land areas of the world as nations, tribes, and families; but looking more closely the eye catches the strange distinctions of race. At the right the assemblage is white, and at the left it is black, while between are varying shades of yellow and brown connecting the extremes by insensible gradations. Along with the difference in tint and tone go certain dissimilarities of form, stature, proportion, and physiognomy, emphasizing the distinctions due to color and thus blocking out the groups called races — the Caucasian, the African, the Mongolian, and the American. These distinctions are the most striking and important that can be made, and the races naturally become the subject of special study.

In beginning our examination we are at first embarrassed by differences in appearance that result from culture. The civilized nation seems to have a vast advantage over the uncivilized, and the polished and well-groomed man and woman seem of a higher type than the poor, ignorant, and decrepit, but such differences are only superficial and do not characterize race. To get a clear conception of the real relations of the races we must, in imagination, sweep away all differences in condition and take the average man and woman of each race. What seemed to be important distinctions vanish at once, and we compare race with race on an equal footing. Going from extreme to extreme of the line, we realize how much alike the races are in all essential features. Observe the physical characters — the form of the head, the body, and the limbs; the relative proportions of the parts, the upright position, the graceful movements, and the smooth skin. Note the intellectual qualities, the use of articulate speech, the ability of each to learn the speech of all, to practise the arts of all, to sing the songs of all, and to think the thoughts of all.

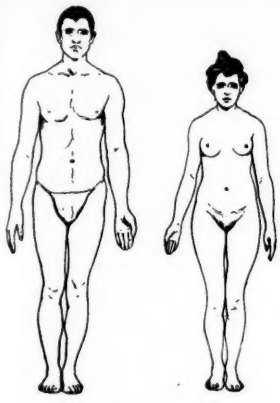
The accompanying outline figures (plate XX) take the place of the large series of lantern slides used in illustrating this paper as presented before the Anthropological Society. Nearly all are

from photographs and serve to show in a striking manner the general physical unity of the races of men. The views of apes which follow (plate XXI) are quite sufficient to emphasize the wide gap between the human and the brute. It is sometimes asked whether the highest ape is not higher than the lowest man. This question is sufficiently answered by comparing the figures of Australians, who are near the base of the human series, with the gorilla and the chimpanzee, the highest of the brutes.

The characteristics of the Caucasian race are familiar to all. The two examples presented in this series (plate XX, figures 1 and 2) are not drawn directly from life, but being somewhat ideal may well stand at the head of the list, representing our highest conceptions of human form and proportion.

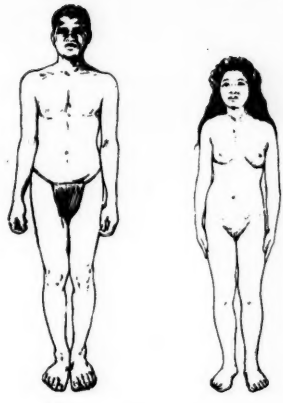
In passing to another race it is observed that we do not leave the typical human characters behind. Of the central Mongolian — the Chinese and their closer allies — no examples are available, but they are no doubt equal in physical development to the border groups, of which figures 3 and 4 are representatives. The first of these is a Filipino man of Luzon, and the second a woman of the same group. Passing on to the straight and wavy-haired peoples of Polynesia, we meet other modified Asiatic types equal in physical perfection to the highest Caucasian.

It is customary to think of the Eskimo as a somewhat modified Asiatic, and of the American Indian, although probably of the same origin, as being so fully differentiated as to be classed as a separate race. Two Eskimo figures, reproduced from photographs published by Captain Peary, are given in figures 5and 6 of the series. Although from time immemorial leading a life of many hardships, the Eskimo are still a remarkably comely race. As to the Indian, there are as fine physical types among them as can be found anywhere in the world. I present only two examples, figures 7 and 8, chosen from the most lowly savages found on the American continent, the houseless, poorly nurtured inhabitants of Tierra del Fuego.



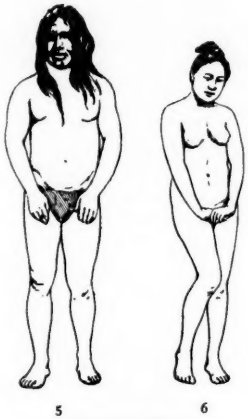
1 2

CAUCASIAN



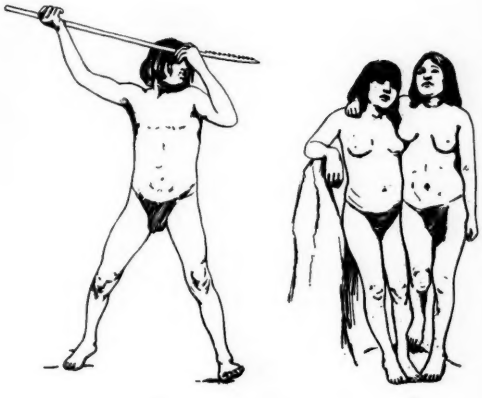
3 4

MONGOLIAN



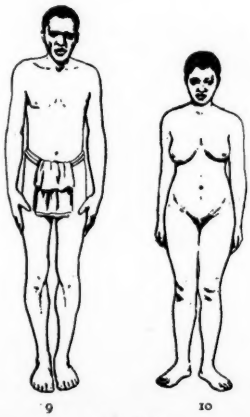
5 6

AMERICAN (ESKIMO)



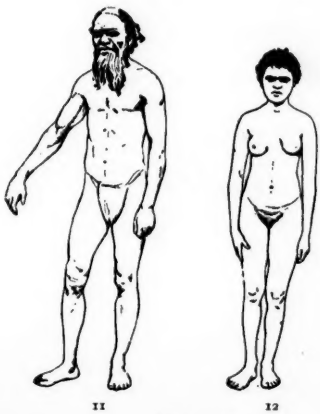
7 8

AMERICAN (INDIAN)



9 10

AFRICAN



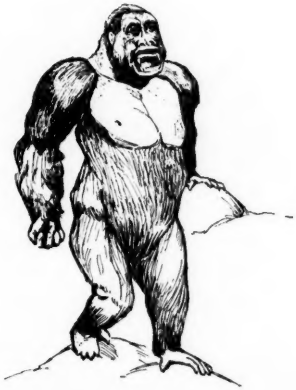
11 12

AUSTRALIAN

TYPES OF MANKIND

13. CHIMPANZEE

14. ORANG



15. GORILLA

TYPES OF THE APE

It is to the physical characteristics of the so-called lower races that I wish to direct special attention. In color, physiognomy, hair, etc., there are certainly wide distinctions between the black and the white, but in all the elements that go to make up the physical type of *Homo sapiens* there is practical identity. By the crossing of the races the most divergent characters grade imperceptibly one into another. Two ordinary Africans are shown in figures 9 and 10.

The last of the series, the Australian (figures 11 and 12), although now and always, no doubt, a debased savage, is still distinctly a man; and a glance along the line from Caucasian to Australian will make it clear that the range of the human form divine is after all a narrow one, the differences, except in minor features, being difficult to express by graphic means.

To realize how very near to one another the various members of the human family are, it is necessary only to compare them with the innumerable other groups of creatures in the world; indeed, it is quite enough to contrast them with their nearest of kin, the man-like apes (figures 13, 14, 15). These creatures form four groups much more widely separated from one another than are the four races of man from one another, and with a vastly wider gap between their highest form and man. They are, however, considering the entire class of mammals, grouped with men as anthropoids, which are set apart by a very wide interval from their next of kin the lemuroids. How far they stand apart from man is indicated by the illustrations. The twelve figures at the left show the human form in nearly its full range. The three figures at the right stand for the apes, half upright tree-dwelling creatures without articulate speech, long-armed, hairy, strong-jawed, small-brained, and brutal.

There are, however, many suggestions of relationship between man and brute, and we are led to believe that the wide gap must at some period have been bridged. Among all races there are individuals deficient in physique or mental capacity, or debased

through poverty and crime whose appearance suggests reversion to lower types. But there are still more real and convincing evidences of the relationship of man and the apes than is furnished by these poor degenerates. Between *Hominidæ and Simiidæ* several fossil forms appear — the much sought missing links. Some of these are lower men (Neanderthal, Spy, etc.), some are intermediate or higher apes (*Dryopithecus*); and one, from the Tertiary formations of Java (*Pithecanthropus erectus*), is midway, or nearly so, between man and ape. These seem like meager proofs indeed to support a proposition of such magnitude, but, since the present is only the initial period of investigation in the great field of human paleontology, it is to be expected that further testimony will be forthcoming and that the geological formations will, in good time, yield ample evidence of the direct genetic kinship of man with the lower forms.

Anatomy and embryology are believed to yield still more convincing proofs that in his origin proud man is linked with Nature's humbler children.

We thus have before us, on the horizon of the present, five groups of creatures — man, chimpanzee, gorilla, orang, and gibbon,— that stand alone among the creatures of the world. Seeking the origin of these allied forms, four questions may be asked and answered.

DIAGRAM A.—Theory of the independent creation of perfected forms as opposed to evolution.

First (Diagram A). Were these five groups or any of them independent creations; are they or any one of them the progeny

of a single pair, male and female, formed directly from non-sentient matter by a supernatural power? Science says no; this traverses the laws of nature and cannot be considered.

Second (Diagram B). Did they arise independently on separate ancestral stems through a long succession of simpler forms

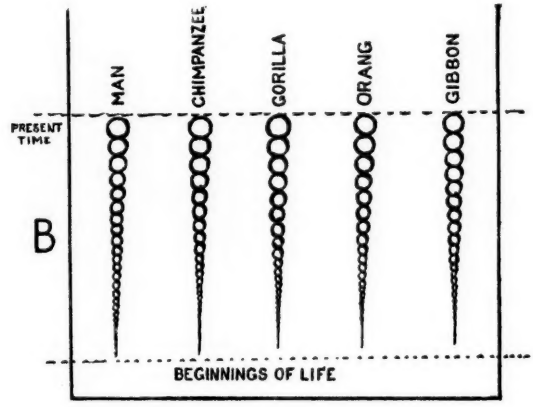


DIAGRAM B.—Theory of independent evolution.

extending back to one or more birth-places of elementary life in the world? Science is agreed that this is improbable in the extreme.

Third (Diagram C). Did one of these forms spring from another, man from chimpanzee, chimpanzee from one of the other known forms, and so on down the line to a beginning in still simpler forms? Few will be found to advocate such a scheme.

Fourth (Diagram D). Have all come up through a succession of antecedent forms from a common ancestral stem, somewhat as branches of a tree, that stem having its ultimate origin ages back in elementary forms of life? This is the theory considered most satisfactory by many men of science. Biology knows no other method. It is not held, however, that the formation of specific groups is as simple a process as the branching of a tree, but the

analogy is sufficiently close for purposes of illustration. The five anthropoid groups are believed to represent the surviving branches of a Tertiary stock, and biology, aided by geology, is engaged in a study of their origin and relations. It is assumed further that this generalized stock had its origin through a suc-

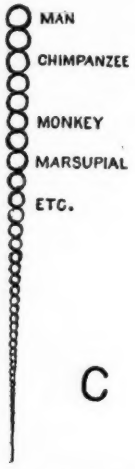


DIAGRAM C.—Theory of the origin of man in known lower forms.

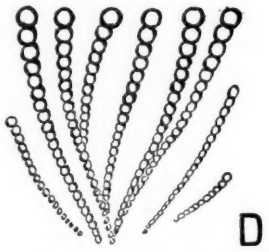


DIAGRAM D.—Theory of the origin of man in some common ancestral form.

cession of stocks going back indefinitely and that the problems of man are therefore the problems of the whole system of life in the world. The entire scheme of biotic evolution is thus involved in our investigation and a few simple diagrams will assist in elucidating my conception of the general subject, which, as a matter of course, is largely hypothetical.

In diagram E a number of groups of beings having different life histories are presented. Each is supposed to begin in some period of the distant past and at some point in the world where favorable conditions for the development of life germs prevailed. They advance through the ages pretty much as individual human beings advance through the stages of life — some dying early,

some flourishing for awhile, some suddenly cut off, and others persisting through all changes of prosperity and adversity. The periods here assumed may be a million or ten million years in length, and each branchlet may represent ten thousand or ten million individuals as well as many genera and species.

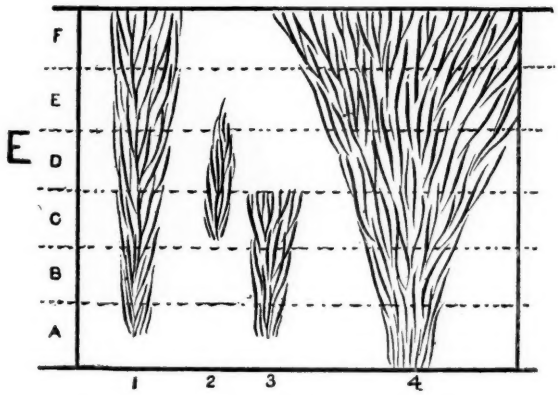


DIAGRAM E.—Life histories of great groups of living forms.

Group 1 begins in period A, and survives with abundant development through all the ages up to the present.

Group 2 begins in period C, and flourishes for a time to die out in E.

Group 3 has its beginning in A, and suffers sudden extinction through adverse changes in its environment at the beginning of D.

Group 4 begins early, in a favorable region of great extent, and thrives and spreads like a vast tree with multitudes of branches rising to the present and peopling the world with its varied progeny.

The vicissitudes to which life groups must have been subjected and the effect of these vicissitudes upon their history may be shown more in detail. In diagram F it is assumed that in period A the life impulse acting on protoplasmic matter produces

great numbers of elementary beings, that the group survives with gradual increase in complexity of organization and variation of form through period B; that this general order of events keeps up through C, D, E, and F, to the present. This is doubtless a much more simple and uniform family history than nature would

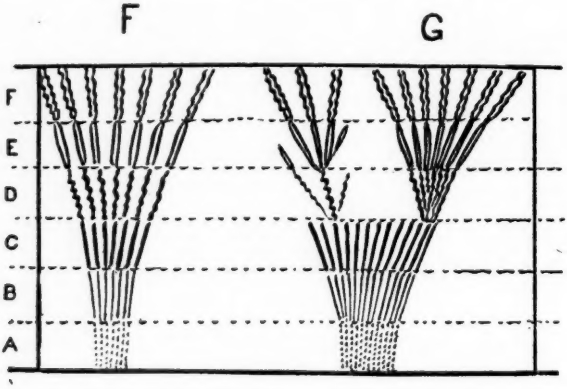


DIAGRAM F.—Group of living forms having a simple history.

DIAGRAM G.—Group of living forms having a diversified history.

be able to furnish, for with a world full of changes and with vigilant enemies ever at hand, wide variations must have been common, and disasters and extinctions not rare.

In diagram G is presented a life stem exhibiting much more varied fortunes. The beginnings are like those of group F. Vast multitudes of simple organisms are born and give birth to succeeding multitudes advancing and changing, intermingling, separating, uniting and separating again until the end of period C. At this stage the habitat of the group, which may be an island, a continent, a lake, or a sea, undergoes a radical change, and conditions become so strenuous that the group barely escapes annihilation. All branches are cut off and die save two that happen to be more favorably situated than the others; these survive and are able to adapt themselves gradually to the new conditions; but being already far separated in their course upward

through periods A, B, and C, they rise through D, E, and F, to the level of the present, strangers to one another and to all other groups of beings in the world. Their relationships could be made out only by anatomical examination, by embryonic analogies, or by the discovery in the rocky records of periods D, E, and F, of fossil remains connecting them backward to the common group at the beginning of period D. It is thus that, in a crude and sketchy way, the histories of great groups of living forms may be outlined.

On some such stem, we believe, and in some such manner man has come up from the earlier forms, parting with many varying groups at succeeding stages to find himself finally on the level of the present in a strange and perplexing state of uncertainty as to what has happened in his past, and as to his relationships with the beings about him, and naturally, without any definite conception of the trend of his future.

If the general scheme of biologic history outlined above be correct, it follows that, no matter what the vicissitudes of any developing group, all of its species, varieties, and individuals necessarily connect back to the primordial forms in which it had its genesis. There may be sports or rapid and exceptional development, but no strays. Nearness of relationship means merely lack of divergence or differentiation, and cannot result from reversion of widely divergent forms or from fortuitous approach of non-consanguineous types.

This may be an appropriate place in which to refer to the question, sometimes raised, as to whether man could have originated in a single pair, or whether at any period of his history there could have existed only a single pair specially created or otherwise existent. Speaking in general terms it may be said that, as we go backward along the course of development of any group of creatures from highly organized to less highly organized forms, we shall expect increase rather than decrease in numbers of individuals. Changes which lead from lower to higher forms are hardly brought

about by sudden modification of individuals, for such limited variations cannot affect the group as a whole, but by changes at one and the same time in all the members of the group that happen to come within the influence of the particular conditions inducing or fostering the change. The number of protozoans in a particular group may have been far greater than were the more highly organnized invertebrate forms into which they passed, and the invertebrate group may have been a thousand times more numerous than the vertebrate family which followed. Again, the lower vertebrate family may have far exceeded in numbers the higher vertebrate tribes that sprang from them.

It must be admitted, however, that under certain conditions the number of individuals in a particular group may have been very small and that the building up of a new group from a single pair (assuming sex differentiation as an accomplished fact) is a possibility, though hardly a probability. If, for example, a quick change should come over the habitat of a limited group of creatures, so far destroying it that a pair only escaped destruction and survived to reproduce their kind, we would have what might be loosely termed origin in a single pair, but which is more correctly described as survival through a single pair, since in the blood of this pair there would necessarily run the blood of a thousand antecedent generations. Or suppose again that a single pair of some highly organized animal should by some misadventure be cast away upon a land unknown to their kind and that conditions should prove so favorable that a colony was established, it would seem that a new group and in time a distinct race might thus arise. But all this might come to pass without in the least affecting the general uniformity of biological processes and progress, for all individuals and all groups would connect back to the elementary life germ in unbroken sequence. Special creation is in no sense involved. The term monogenesis is sometimes used by writers on ethnology to express the idea of origin in a single pair, but since no instance of

such origin is known to biologists and no such possibility is even postulated by them, this use of the word is misleading and should be carefully avoided. This term, however, is also used to signify origin in a common stem or ancestral group, and is thus contrasted with the word polygenesis, which signifies origin in a number of stems or widely variant ancestral groups. Viewing man as presented in the series of outlines (plate XX), it seems in the highest degree improbable that any extraneous form, the result of wider divergence, has crossed with members of this group since the parting of the ways in Tertiary times. I prefer to think of the present races as representing in their diversified types the fullest degree of divergence attained by the human species at any period of its history. At any rate the divergence could never have been much greater than now without resulting in the full separation of the wider variants; and even if, throughout the entire history of the genus *Homo*, there have been decidedly divergent groups corresponding somewhat to our present races, breeding in and in, yet never fully coalescing, I am strongly inclined to the view that monogenesis will as satisfactorily express the genetic relations of these groups or races as any other term.

One of the greatest facts in biology is divergence of forms with multiplying generations. By divergence we must account for the wide range of species and varieties of highly organized creatures in the world. Convergence also is a well known process in biology, but its action would seem to be extremely limited as compared with divergence, since it is operative only within the inter-fertile range. When any two groups are in process of divergence from the common parent, through gradual separation, converging agencies conspire to prevent the parting, but as soon as the non-fertile limit is passed, sexual intermingling and consequent convergence must cease, no matter what the subsequent opportunities of sexual contact. The fact with respect to the human groups is that they have not varied beyond the mutually fertile limit, so that convergence is the natural order, and its

amount and degree are regulated by laws that may readily be analyzed. Convergence of varieties is no new fact, for increase of facilities of communication of closely allied groups, no matter what the agencies bringing it about, has always in all biologic history accelerated the integrating movements. This point will be made plain by subsequent diagrams.

In order to indicate more definitely the genetic relations of the human groups and the influences that must have affected their character and history, I shall resort to other diagrams. There appear to be two classes of forces concerned in shaping the destinies of developing groups of living things. The first of these is exerted in the direction of variation, divergence, and differentiation, and is always and everywhere active, and the second is exerted in the direction of convergence and integration, that is to say, toward the maintaining and returning to uniformity of type and direct undivided progression, which, as just indicated, is active only within the range of fertile consanguinity. Of the first class I may mention (1) the so-called inherent tendency to vary — no offspring ever exactly resembling a parent, the variations tending toward repetition and perpetuation; (2) the influence of diversified environments, which bring about or encourage change of form; and (3) the processes of selection which favor one class at the expense of another. The second class includes (1) heredity, which transmits characters with a minimum of change; (2) hybridity, which operates to blend all characters and to obliterate all differences; and (3) the conservative or negative influences of analogous environments, which tend to hold variation in check.

We have already seen how fundamentally alike all men are and have reached the conclusion that it is easier to account for the racial differences observed among men on the theory that they arose within a limited homogeneous group through differentiating agencies, than that such closely related beings should spring from distinct origins indefinitely remote to become finally associated and to fertilely intermingle. The biologist can explain

the phenomena in no other way and the anthropologist cannot expect to set up a system of his own. Assuming, then, approximate uniformity of the particular group from which *Homo* sprang, probably in Tertiary times, we seek to illustrate the parts that the various agencies of integration and differentiation have taken in producing the races.

If conditions in a given limited land area are uniform, if the climate is equable, if the land and water are somewhat evenly distributed, if mineral and organic products are alike everywhere, and if no impassable barriers exist, preventing free distribution of populations, variations of a pronounced character would not be apt to arise. Intermingling would be general, constant, and far reaching; and just here we perceive that in considering this question of divergence and differentiation we must take into account the size of the inhabited area in relation to the powers of locomotion and enterprise of the individuals of the group. The varying conditions in two limited, neighboring, connected areas might aid in bringing about specific changes in groups of snails, but hardly in groups of deer.

Diagram H is intended to show that in a limited area the tendency on the part of groups of men to vary and differentiate would be neutralized by the forces of integration. The limiting lines at the right and left represent the boundaries of the area occupied. Intercommunication being easy, tendencies toward varietal partings would be kept in check. A goodly percentage of the families or other limited social groups passing outward to the borders of the area would be turned back again into the general current, always and inevitably. The progeny of one extreme of the area, A, might be the parent of the next generation in the opposite extreme, B, and so on up the ages. In a limited homogeneous area, therefore, pronounced varieties of man could hardly arise.

Enlarge the area (diagram I) and conditions change. Distribution would be so wide that occupants of the more distant districts (C, D) would rarely come in contact, and the flux would not be

complete. The more sedentary communities would develop local peculiarities by means of which the people of the east could be distinguished from those of the west, and those of the north would differ from those of the south, but even with an extended

DIAGRAM H.— In a limited area intermingling is general and variation is slight.

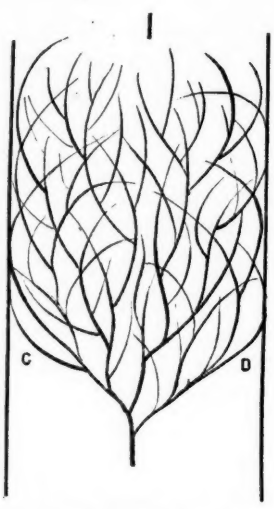


DIAGRAM I.— In an extended area intermingling is not general and variation is pronounced.

continental area, if it be approximately homogeneous in characters, race differences would be extremely slow to develop.

Suppose, however, as indicated in diagram J, which is a map assumed to include four great continental areas, that the habitat is not a unit and that the growing population wanders from the primeval home, or specialization area A, where integration had full sway, into regions separated by mountains or deserts (B, C), and we have at once nuclei of distinct groups and centers of differentiation. But let us imagine that one of the branches (C) pushes out over the margin of the original area and discovers and occupies a new land (E) separated by pronounced barriers (D) from the original habitat. Let us suppose further that this branch becomes

completely cut off from the ancestral stock by geologic changes. The integrating agencies become at once inoperative between the two continents while the differentiating tendencies operating independently in the two groups have entire freedom to widen the breach and lay the foundation for race differences.

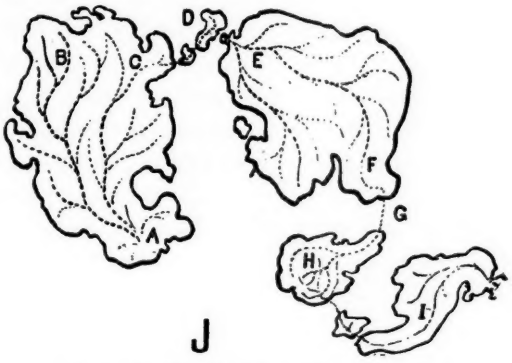


DIAGRAM J.— Map of four great land areas illustrating possible mutations of race.

The idea may be further elaborated by supposing that pioneers of this group find their way to a third continent (H), forming colonies and laying the foundation for a third distinctive people. But let us suppose again that in the course of time this particular land area is invaded by other tribes from a distinct source of population (I) and in such numbers that there is evolved a hybrid people differing from all other existing groups in physical and intellectual characteristics. We have thus within the areas included in the map three nuclei of specialization and three more or less fully differentiated races, — two produced by separation and isolation of divisions of a single stock, and the third by a totally distinct process, the union of two distinct racial strains in one. It should be noted that the founding of such a mongrel race does not imply the obliteration of either of the races furnishing the nucleus. But now let us suppose that the conditions giving rise to expansion and resultant

divergence should change and that contraction of the occupied areas should take place. Let us conceive that area H gradually sinks beneath the sea or in some other way becomes uninhabitable. The people are driven, let us say, to F. If the differences between groups H and F are only varietal, coalescence will begin and in due course there will be but a single group. Integration will have done its perfect work. If the process should go on and continent after continent disappear until an island only is left at A, the whole effect of expansion and differentiation would be destroyed and a single uniform group would result. If, on the other hand, differentiation had gone so far on each great land area as to establish permanent specific differences, area A would in the end hold within its limited bounds three groups of creatures, related to one another in genesis, but forever set apart as distinct forms.

The land areas of the world have been subject to change always, and the races of men have been shifted from place to place with ever-varying results. Changes in climate and food supply, and movements of rival tribes of men and beasts have aided in keeping the human magma plastic, and the agencies of divergence and convergence have been free to model and remodel the groups.

Having seen how fully the character and destinies of the human groups are necessarily under the control of the areas occupied, their relations and conditions, let us turn to the geography of this world of ours. It is seen that the land areas are widely separated and that the conditions in one differ radically from those in another. There are four or more distinct areas of large size, and all have been occupied for ages, the populations being so completely separated that one knew not of the existence of the other until in recent times. Is it to be expected, then, that all men would be alike? Far from it. Such a result would be absolutely impossible. The differentiating agencies have had full control while the integrating forces have operated mainly within the separate

groups. The races are the natural and inevitable result, directly or indirectly, of occupancy of the isolated continental areas of the earth by primitive man.

I wish now to combine in a single diagram (K) a summary of

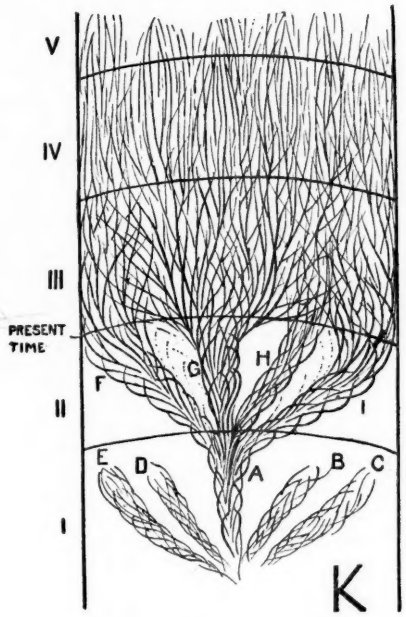


DIAGRAM K.— Showing origin of the genus *Homo* (A) in Tertiary time, separation into races through isolation in Post-Tertiary time (F, G, H, I), and theoretic blending of all forms in future time.

my conception of the development of the species and the races from the period of specialization of the anthropoids up to the present time. The side lines in this diagram stand for the limits of the world within which the branching tree of the *Hominidæ* (A) springs up. The horizontal lines connecting across, mark the periods by means of which we separate the stages of development.

The first period (I) is that which witnesses the specialization of the group of creatures (A) from which man sprang. It may be

regarded as corresponding somewhat closely to the Tertiary period as formulated by geologists. We know not the exact number of closely related branches at that time, but it is held that the prospective human stem flourished and rose above the others. In the diagram the collateral branches B, C, D, E, are left undeveloped in order that *Homo* (A) may have a clear field — in order that we may illustrate more clearly the manner in which this group, according to our best interpretation, spread from its natal district and occupied the habitable world.

That the home of the human precursor was, at this stage of his development, restricted in area is assumed on reasonable grounds. The apes and monkeys of today, which are believed to correspond in grade of development to the human stock of the natal period, are not widely distributed, but occupy very restricted areas and such as are particularly suited to their arboreal habits and their rather delicate constitutions. There is no reason to believe that man at a corresponding stage was more hardy, more enterprising, or more widely scattered.

In the diagram, therefore, the stem A is made narrow below, widening upward, thus suggesting expansion of area with increase in numbers, energy, and intelligence. This expansion was, no doubt, very slow and may or may not have extended to the farthest limits of the land area occupied, but it was prophetic of the greater expansions to be realized in period II. We cannot know in just what part of the world these events took place, just where the prehuman group was transmuted into the human. It may have been in Europe, Asia, Africa, Eurasia, Eurafrica, Lemuria, or America, but this does not matter here. We reach the conclusion that at or near the close of Tertiary time (period I) the change occurred and that upright, self-conscious man took his place permanently in the van of progress. We conceive further that, about this time, the continents assumed approximately their present dimensions and relations and that this creature man, breaking over the barriers that formerly hedged him in, was

ready to engage in their conquest. The simple, initial, integrate period of his career had now closed, and a period of marvelous expansion supervened (period II).

Spreading gradually into the various continental areas the incipient human groups, as yet reasonably homogeneous in character, became widely separated. Some were quite completely isolated and went their separate ways, becoming sharply demarcated from the rest. Others less fully isolated continued to intermingle along the margins of the areas occupied, so that gradations of characters occur, and in some cases the resulting hybrid peoples have probably occupied separate areas long enough to become well-established varieties. Three or four groups only became so widely separated and fixed in physical characters that students are agreed to call them separate races, but these comprise the great body of mankind.

The line marking the close of period II stands for the present time, and F, G, H, and I are the races now in evidence. Let us consider what is happening along this line today. The end of the second period—the isolated specializing period—has come for the races, and changes of a momentous kind are being initiated. Man has spread and occupied the world, and the resulting isolations and partial isolations on continent and island of peoples having meager artificial means of transportation, have brought about, directly or indirectly, the variations called races; but the period of group isolation and consequent race specialization is at an end. In the last few hundred years the sea-going ship and the railway have been invented and the extremes of the world are no farther apart than were the opposite shores of a good-sized island when, a little while ago, all men went afoot. The period of differentiation is closed forever and the period of universal integration is upon us. We do not see how rapid these movements are, but contrasted with the changes of earlier days they are as a hurricane compared with the morning zephyr. The continent of America has changed its inhabitants as in the twinkling of an eye, and

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Asia, Africa, Australia, and the islands of the Pacific are in the throes of race disintegration. Today each man may go two hundred and forty times around the world in his short lifetime. A single individual may be the parent of progeny in every important land area of the world; and this is only the beginning — the first few hundred years — of a period to which millions must be assigned. Then how shall we project the lines of the diagram into the future? There can be but one answer.

Very briefly we may outline the inevitable course of human history. In period III the races will fade out and disappear as the combined result of miscegenation and the blotting out of the weaker branches. The world will be filled to overflowing with a generalized race in which the dominating blood will be that of the race that today has the strongest claim physically and intellectually to take possession of all the resources of the land and the sea. Blood and culture will be cosmopolitan. Man, occupying every available foot of land on the globe, will be a closer unit than he was on the day far back in period I, when, in a limited area hidden away in the broad expanse of some unidentified continent, the agencies of specialization first shaped up the species.

But there will be an end to the third period. Although it may be far away, it will come as certainly as it is that all things change. The nature of that coming can only be surmised; all depends not on what man may do, although he may do much, but on cosmic mutations, on the maturity and decay, on the lease of life, of the frail little body we call the world, since beyond its restricted limits no mundane creature may extend its conquests. Many surmises may be made as to the course of the declining period of the species and its dwelling place, but these can take only the form of unanswered queries, which may give way to other queries as knowledge of cosmic conditions advances and matures. Such speculations may be utterly unavailing, but they are in no way misleading and must ever be fraught with the deepest interest.

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The end must come, but we can only guess what that coming will be like:

(1) Will man multiply, fill the world, and exhaust its resources in period IV, gradually abandon commerce, then discontinue intercontinental intercourse, grow more and more impoverished, lapse through isolation into separate groups again and then into degenerate races of savages, ending a miserable existence in the few areas capable of sustaining life the longest? This result is suggested in the fifth and last period of the diagram.

(2) Will similar results possibly follow from other causes? Will the waters of the surface, already largely absorbed into the earth's crust, sink deeper and deeper as the cooling of the interior goes on until the surface is a desiccated desert unfit for man or beast?

(3) Will the waters continue to act as they act today upon the land, little by little, but nevertheless surely, cut down the hills and mountains until all the land is beneath the sea save such artificial continents as man himself may raise?

(4) Will changes in the atmosphere, now said to be going on, gradually obliterate all life?

(5) In the course of cosmic mutations, will the sun's heat cease to warm this poor clod and a deadly chill fall upon all living things?

(6) Will disaster come to the world through encountering a comet or other wandering body, and will it become part of a new world and the home of a new people? or

(7) Will the forces which now hold the planet in its even course gradually loose their initial control, permitting its final absorption into the central body, the sun?

Whatsoever the course of cosmic events, there is nothing surer than that there will come an end to the races that now are, to mankind as a whole, and to the world he inhabits.

XUM

NOTES ON THE HAIDA LANGUAGE

By JOHN R. SWANTON

The following preliminary sketch of the Haida language is put together from notes made in the winter of 1900–01 which the writer spent on the Queen Charlotte islands in the interest of the Jesup North-Pacific Expedition and from a subsequent study of the texts obtained at that time. It is based mainly on the Skidegate dialect. The author had the advantage of previous access to the notes taken by Dr Boas and published in the *Fifth Report* of the committee appointed to investigate the northwestern tribes of the Dominion of Canada by the British Association for the Advancement of Science.[1]

The phonetic system is similar to the systems of the neighboring coast tribes, abounding in *k*- and *l*-sounds, and in sounds requiring stress in articulation. The following table, drawn up like that in Dr Boas' *Sketch of the Kwakiutl Language*,[2] presents the scheme of consonants:

	Sonans	Surd	Fortis	Spirans	Nasal
Velar	G	q	q!	x	–
Palatal	g	k	k!	X	ñ
Alveolar	d	t	t!	s	n
Dental	dj	tc	tc!	–	–
Labial	b	p	–	–	m
Lateral	ꞁ	L	L!	–	–
Laryngeal catch and breathing	ʿ			ˣ	

h, y, w.

I have omitted the anterior palatal series, because the Haida sounds which should be classed under that head seem to me acci-

[1] Newcastle-upon-Tyne Meeting, 1889.

[2] *American Anthropologist*, vol. 2, 1900; pp. 708–721.

dentally produced, owing to the presence of a following close vowel. *p* seems to occur only in onomatopoetic elements (*lA lA skîttA'p-adāGAn*, 'he cut it in two'); *b* occurs not more than two or three times in strictly Haida words throughout my texts; and *m*, although considerably more abundant, is by no means common. The catch (ᶜ) is used in Masset instead of Skidegate *G*, and ˣ instead of Skidegate *x*. *x* is like German *ch* in *Bach;* X is similar, but pronounced farther forward. Even among old people the fortis-sounds are frequently reduced to simple pauses. This is particularly true of sounds formed far forward in the mouth. At other times they are uttered with rapidity and force. In recording my texts, I found it difficult to distinguish fortis-sounds from sonants. ꞱI sounds something like *dl*, and L something like *tl* or *kl*. In both, the tip of the tongue touches the back of the teeth, and the air is expelled at the sides. *ɭ* is similar, but more of the tongue is laid against the roof of the mouth, and a greater volume of air allowed to escape. *ñ* is identical with English *ng* in such words as *string*.

The Haida themselves distinguish only six or seven vowels. They are *i* or *e;* *ī* or *ē;* *A*, *a*, *ā;* *o* or *u;* *ō* or *ū*. Those given in pairs do not seem to be distinguished from each other, though the difference between their long and short sounds is certainly recognized. Nor does there seem to be a great difference between *a* and *A*, the obscure sound. *ä* occurs occasionally, as if by accident, but *â* is found only in Tsimshian words. *î* seems to be an accidental *i*. There is, besides, a constantly recurring vowel combination which I have usually written *a-i*, but it sometimes sounds like *ei*, and often, especially in Masset, as *ē*. *u* and *a* in Masset are sometimes reduced to the slightest breathings.

Euphonic changes are not so numerous in Haida as in many other languages. *o* shows a strong tendency to change to *ao* under certain conditions. This may be due partly to the position of the accent, for *a* is frequently introduced to carry it. *dj*, followed by a vowel, frequently contracts to *s;* or, under reverse

circumstances, *s* changes to *dj* (*t!ēs*, 'rock'; *t!ē'dja-i*, 'the rock'). *l* and *ɻ* are mutually interchangeable (*-giɻs*, *-gialañ*, a suffix meaning 'toward the woods'), and *d* changes to *t* (*djat*, 'woman'; *djā'ada-i*, 'the woman'). A *g* is retained in the connective *ga-i* after some substantives ending in *a*; otherwise it is usually dropped (*ɻGā'ga-i*, 'the stone'; *Lua'-i*, 'the canoe'). In ordinary speech the terminal combination *-gAñas* shortens to *-gAns*. *g* in the Skidegate dialect changes to *x* or X in certain situations, apparently after dentals. *p* changes to *b* in the word *sīp*, 'sea anemone,' when it takes the connective *ga-i* (*sī'ba-i*, 'the sea-anemone'). In the Masset dialect final *-ga* sometimes contracts to *-k*. Many consonants are not used together, but combinations of *s* followed by a *k*-sound or dental, and of *s* followed by *L*, occur frequently.

The entire sentence is brought into close union with the verb by a series of preceding elements which usually have the aspect of postpositions, though sometimes also of substantives. The substantives they follow may, however, be omitted; so it is evident that their dependence is mainly on the verb, and that they are to all intents and purposes verbal prefixes used to incorporate substantives and pronouns in the verb. Such "subordinating prefixes" are *Ga*, 'in'; *Gei*, 'into'; *gī*, 'to' or 'for'; *stA*, 'from'; *qā'ɻi*, 'inside'; *xē'ɻi*, 'inside the mouth'; *aɻ*, 'with'. The subordinate conjunctions (like *Ʇu*, 'when') belong to this series. Even *gien*, which generally has the appearance of a subordinate conjunction, is often used as equivalent to 'when,' and hangs upon the following verb. *Gie'nhao*, *qa'odihao*, etc., are generally used to introduce new ideas, *hao* being a sort of general demonstrative referring to all that has gone before. What has sometimes been called the article is rather one of these subordinating prefixes, which has a very general meaning and has come to be closely associated with substantives in certain situations.

Pronouns, or rather pronominal prefixes, precede the verb-stem, and are often at some distance from it, in which case they

are followed by one of the prefixes just referred to. There is a subjective and an objective series, as follow:

	Subjective Pronouns	Objective Pronouns
	Singular	
1st pers.	*l*	*dī*
2d pers.	*dā*	*dAñ*
3d pers.	*l'* or *lA*	*l'* or *lA*
3d pers. (indef.)	*nAñ*	*nAñ*
	Plural	
1st pers.	*t!alA'ñ*	*iL!*
2d pers.	*dalA'n*	*dalA'ñ*
3d pers.	*lA--Go*	*lA--Go*
3d pers.	*L!*	*L!*
3d pers. (indef.)	*ga*	*ga*

The indefinite forms, *nAñ* and *ga*, are used with substantives more often than with verbs, and may then be translated 'a' or 'a certain' and 'some,' respectively, the former performing the functions of our indefinite article. They may, however, be used exactly like the other pronouns and occupy the same positions relative to the verb. *L!* and l*A--Go* now seem to be almost equivalent, but originally *L!* appears to have been used for an indefinite number of known objects or persons. It is often employed in referring to a single unknown object, and has a secondary meaning as a polite or deferential expression, like the use of the third person plural in German. l*A--Go* is simply the third person singular pronoun with a verbal suffix. Followed by the appropriate subordinating prefix, all of these forms may be used as third objects. The pure reflexive pronoun, *agA'ñ*, 'self,' is used in all respects like an objective pronoun, except, of course, that it never occurs as the subject of an intransitive verb like the latter.

Unlike most American languages, the order of pronouns is object, subject, verb. Occasionally a substantive and a subordinating prefix are placed between the pronominal subject and the verb, but the reverse is usually the case. When substantive subjects or objects are used, the corresponding pronouns are seldom

repeated. Sometimes, where a pronoun or its substantive has just been used with a preceding verb, the next verb may occur without it. The object or subject of a transitive verb may be simply understood, expressed by a substantive taken into the verb, or expressed by some prefix: *ɟdjïla'da*, 'I have (something just referred to) for bait'; *nda dA'ñGa dī qi'ndA*, 'yours (you) let me see'; *ɟXuLā'Gasga*, 'I am going to drink (water).'

There is no separate series of independent personal pronouns, but independent possessives are formed by combining the objective pronouns with a suffix, *-Ga*. In the first person singular, however, the form is *nā'Ga* instead of *dī'Ga* which we should expect. In the third person singular and plural a second form, *A'ñGa*, 'his own,' is used as a reflexive possessive. With substantives the objective pronouns are prefixed and *-Ga* suffixed. Sometimes the suffix is omitted. Reflexive possession, 'one's own,' is indicated in substantives by a suffix, *-añ*, with no pronominal prefix. A word, *gia*, indicates possession in general (*dAñ-gia'Ga*, 'your thing' or 'your property').

Words indicating relationship have the plural suffix *-lAñ* (*l' qā'Ga*, 'his uncle'; *l' qā'GalAñ*, 'his uncles'). Otherwise plurality is left to the context or expressed by adjectives; *skɬūl*, 'a crowd of,' in the case of human beings, and *qoan*, 'many,' in the case of animals or inanimate objects.

Demonstratives are very slightly developed in Haida. The prefix *a-* indicates objects near by; *wa-*, things farther away. They seem nearly identical with the English 'this' and 'that.' As independent demonstratives we have such words as *aɟā'nis*, 'a certain person'; *a'nAñ*, 'a certain thing'; *a'gosa*, 'this'; *wa'gosa*, 'that'; *a'djXua*, 'near by'; *wa'djXua*, 'far off' or 'some distance off.' *Ga-i* and *hao*, which have already been spoken of, have the significance of demonstratives.

In the verb proper are two principal series of prefixes, one indicating the instrument used in performing an action, the other the shape of an object referred to.

Among the first might be mentioned *L-* and *da-*, 'to do things with the hands'; *kit-*, 'to do things with a stick'; *kil-*, 'with the voice'; *q!e-it-*, 'with a knife'; *Go-* and *Xal-*, 'by fire'; *t!a-*, 'with the foot'; *sL!-*, 'with the fingers'; *q!o-*, 'with the teeth'; *Xu-*, 'with the breath'; *Lu-*, 'by canoe.' The last of these is identical with the word for canoe; *sL!-* and *kil-* also occur almost independently as words for 'fingers' and 'voice.' Even verb-stems seem to do duty as prefixes of this order.

The second series of prefixes is still longer. Among them are *sq!a-*, long objects like sticks; *q!a-i-*, roundish objects; *t!a-*, objects like ropes or chains; *tcī-*, objects such as sacks or bags. These are often used separately, followed by *-dju*, 'sort,' 'kind.'

There are a few prefixes that cannot well be classed under either head. Such are *ga-i-*, which indicates that the object is floating upon the water; and *gAn-*, which means that a set of people referred to are performing an action 'in a body.' In combination the instrumentals precede those indicating shape, and *ga-i-* comes before all.

More different kinds of ideas are indicated by suffixes than by prefixes.

Nearest to the stem are a few which define the particular sort of motion of which the verb-stem gives only a general idea. Such are *-Goñ*, motion by the feet, as in walking, and sometimes by the hands and feet, as in creeping; *-gîñ*, motion on the water, as in a canoe. This latter suffix is also used as an independent stem, and indeed the frequency with which two stems are combined in the same verb is quite remarkable.

A certain number of suffixes indicate direction of motion: *-L!xa*, toward any object; *-t!aɻ*, down from above; *-ɻ*, upwards; *-tc!a*, into a house; *-sGa*, seaward or to an open place; *-gîɻ*, landward or 'to cover.'

The largest body of these suffixes indicate various particular temporal relations of which the true temporal suffixes set forth a general idea. Under this head I include *-gAñ*, the pure

continuative; *-gwañ*, which may usually be translated by the English word 'about,' and gives the idea of a great number of repetitions of an action; *-gîn* or *-gīni*, 'habitually' or 'customarily'; *-Xit*, to begin to do a thing; *-gī*, to finish doing a thing; *-di*, which gives the idea that such and such an action was going on at a specified moment, and *-dal*, which tells us that the action expressed by the verb to which it is affixed was going on while some other motion was taking place. *-Lagañ*, which indicates that the action expressed by the verb was the first of a series, might also be added. The continuative, *-gAñ*, presents us with the only case of real duplication in Haida (*La qi'ñgañ*, 'he is looking at it'; *la qi'ñgAñgAñ*, 'he looks at it many times'), but its use does not replace that of plural personal pronouns. *-gī* often involves the idea of continuation of action rather than the end of action, but probably it then means continuation *to the end*.

The suffix *-ʇGa* (Masset, '*odju*) means 'all.'

Negation is expressed by the independent particle *gAm* before the verb, and the suffixed syllable *-Gañ* within it.

The true tenses are present, past, two futures, and probably a perfect and a past perfect. Ordinary present time, or time conceived of as present, is indicated by no distinctive suffix. At times the continuative suffix *-gAñ* and the usitative *-gîn* seem like tense suffixes, but neither is essential to this tense. The past tense takes a suffix, *-GAn* or *-GAni*,[1] and appears to be used precisely like our own. Before the quotative, *wAnsū'ga*, this suffix takes the form of *-añ*, unless, as is barely possible, the latter is the continuative. Simple future time, in the sense of 'I am going to,' is indicated by the suffix *-sga*, and infallible future occurrence (such and such a thing is bound to happen) by the suffix *-sañ*. The difference between these two futures is apparently identical with that between English 'will' and 'shall' in 'He will go tomorrow'; 'He shall go tomorrow.' The perfect is indicated by

[1] The significance of this final *-i*, which occurs with a great many verbs, I have not yet discovered.

dieresis; for example: *La sudaï'yaGAni ĭ'la la isda'si*, 'He did differently from what he had said (he would do).' This may be used alone as a perfect, but more often, as in the above instance, it occurs in combination with the suffix of the past tense, thus forming a past perfect.

A curious phenomenon connected with the subject of tense is the use of a final *-s* or *-es* replacing the regular past ending *-GAn*. From a considerable study of this peculiar suffix I feel assured that it is really the contracted form of the verb 'to be,' *ĕ'dji*, and thus involves a simple affirmation that the statements just made *are* or *were* so. It is thus not surprising to find it used after substantives as well as verbs. A common use is after a substantive preceded by *nAñ*, when it has the force of a definite article. Thus, *nAñ Gā'xa* means 'a certain child'; *nAñ Gā'xas*, 'the child (already spoken of).'

Verb-stems are prevailingly monosyllabic, generally consisting of a consonant followed by a vowel. A considerable number of verbs have entirely different stems for the singular and plural.

Auxiliary suffixes are extensively employed. The principal ones are *-da*, 'to cause'; *-Geal*, 'to become'; *-xAɻ*, 'to tell'; *-siñ*, 'to say'; *-Ga*, 'to go'; *-ga*, 'to be'; and probably *-u*, 'to remain in one place,' as one does when he is sitting down or when he lives in a certain place for a time.

The number of moods is very limited. Potentiality is indicated by the word *ɻiña*. This may be used with verbs or substantives indifferently. Thus we have *A'hao qa'-i-tɻiña'-ihao idjā'ñ wAnsū'ga*, 'These were the potential trees, they say' (i. e. they were going to be the trees). For the optative they use this word after the verb and some interjection before it.

The imperative is distinguished by an independent particle, *ɻ* (occasionally *L!*), all temporal suffixes being omitted. Another particle, *gua*, is used to mark interrogation and corresponds to *na* of the Chinook jargon.

Infinitive and participial expressions are rendered either by

the use of the suffix *-es*, just alluded to, or by the general subordinating prefix *ga-i*. The former variety of expression partakes more of the verb, the latter more of the substantive: *NAñ qō'ɻGawa lA dā'Gas*, 'A slave belonging to him'; *GAm gī'na aɻ Lua'-i qaga'-i qea'ñgañasi*, 'They could not see what caused the canoe to move' or 'the thing causing the canoe to move.' The following is related to the first method: *A'hao gī'na Lua'-i giñgā'isLaiyaGAni ī'djañ*, 'This thing was the cause of the stopping of the canoe.'

When a clause depends on the same verb as one preceding, instead of repeating the verb a simple breathing, *A*, is used: *LA'gi L! djīlsLXidai'yaGAn, a'nAñ q!ā̆-iGodies taɻdjū' gā'-isLia-i ɻu A*, 'They thought of giving her to him, when this island was half-covered with water (they thought of it).' Similar to this is the use of *wa-* before a subordinating prefix to refer to a whole clause (see below).

Adjectives depending upon a substantive are placed after it. When employed independently, they are treated exactly like intransitive verbs. Numerals, when used alone, must take one of the prefixes indicating shape already considered. They may, however, like all other adjectives, be taken directly into the verb as suffixes, and the classifier is not then essential (*L' ta'-idiuɻAstia'-Gan*, 'He went to bed and stayed there two days'; *stîñ*, 'two'). The numeral 'one,' when suffixed, has the force of 'always,' 'forever.' At present the decimal system of counting appears to be in vogue, but the old blanket-count was vigesimal. A syllable, *-xa*, is suffixed to numerals and connectives to give a distinctive meaning (*sq!astî'ñ*, 'two long objects'; *sq!astîñxa*, 'two long objects apiece').

Motion in connectives is indicated by a suffix, *-et* (*sî'lia*, 'place'; *sîlie't*, 'motion to the place').

Substantives which would otherwise stand apart from the verb are followed by the subordinating prefix *ga-i*, which then gives somewhat the idea of our definite article. Some substantives are formed into verbs by suffixing the auxiliary *-ga* (*nAñ gī'da*, 'a child'; *nAñ gidā'gas*, 'one (who) is a child').

The quotative *wAnsū'ga*, 'they say,' is used extensively in the Skidegate dialect, but not at all in Masset.

The following Haida text will set many of these points in a clearer light:

Gie'nhao[1] *GaatxA'n*[2] *xōt*[3] *lA inaGeā'laGAn.*[3] *Gie'nhao nAñ GA'xa*
And then one time hair seal he married. And then a certain child

lA qēGā'waGAn.[4] *Gien GaatxA'n lA dA'ñat tc!ā'anu lA tā'nGaiyaGAn.*[5]
they had born. And one day with him firewood he went for by canoe.

L' gī'tGa[6] *GA'yagas*[7] *gi agA'ñ lA qea'gudaqaos.*[8] *Gie'nhao hAn*[9]
His son was fat he was pleased at the sight of him and wanted (to eat) him. And then like

lA la sūdai'yaGAn[10] "*DAñ Lgoa ɬ tā-ɬiñā'.*"[11] *Gien ga'-istA*[12]
he to him said "You nearly I could eat." And from that

L! isgawa'-i[13] *ɣu*[13] *l' ɬtā'naogīGawa'-i*[14] *stA*[14] *hAn ā'wuñ*[15] *gi lA sī'wus*[16]
they came home when they finished eating after like to his mother he said

"*Ha, ha, ā'wa-i,*[17] *dī GŌ'ñGa*[18] *Lgu*[19] *dī sū'udas*[20] '*DAñ Lgoa ɬ*
"Ha, ha, mother, my father how said to me 'You nearly I

tā-ɬiñā'.'" *Gien hAn Xō'ya*[21] *sī'wus* "*NAñ GaxA'*[22] *wA'stA*[23] *stē'da.*"[24]
could eat.'" And like Raven said "A certain child from it stop."

LA la kilGē'daxaiyañ[25] *wAnsū'ga.*[26] *Ga'-istAhao*[27] *lA la tā'gañ*[28]
He made him ashamed, they say. From that (time) him he devoured,

wAnsū'ga.
they say.

NOTES

(1) *Gie'nhao* is the general introductory conjunction; *-hao* refers to all that has gone before.

(2) *Ga-* is perhaps the subordinating prefix 'in'; *at* is the subordinating prefix 'with' or 'of'; and *xAn* an adverbial particle meaning 'even,' 'still,' or 'yet.' It has the sense of 'exactly that' or 'right there,' and enters into a great many words like the above.

(3) *Xōt* is the object of the verb of which it is practically a part; *lA* is the personal pronoun of the third person singular, subject of the verb. The verb stem is *in-* or *ina-*; *-Geal* is the auxiliary meaning 'to become' and *-GAn* is the past temporal suffix.

(4) *LA* is the subject of the verb, and *nAñ GA'xa* the object, *nAñ* being the indefinite pronoun of the third person singular. Since the child has not been spoken of before, *GA'xa* does not take a final *-s*.

Qē- is the stem of the verb 'to be born'; *Gaw* is the same as *Go*, the plural suffix following *lA*. Thus *lA--Go* = 'they.' *GAn* is the suffix of the past tense.

(5) *LA* is the third object. The subordinating prefix, *dA'ñat*, is formed by means of a shorter subordinating prefix, *at*. *DA'ñat* gives a stronger idea of accompaniment than *at* alone. *Tc!ā'anu* is the substantival object. The word may mean 'firewood' or 'fire.' The second *lA* is the pronominal subject of the verb; the dieresis *-aiya* indicates that the action was completed, and *GAn* is the past temporal suffix.

(6) *L'* is the prefixed objective pronoun of the third person singular, and *-Ga* is the common possessive suffix.

(7) The word for 'fat' is *Gai*, *-ga* being the verbalizing suffix, and *-s* the definitive suffix which indicates that 'his son was fat' is to be taken together. It therefore has the force of a participle, 'his son being fat' or 'his son's fatness,' connected with the verb by the following particle *gi*, and may be considered a third object, the whole expression reading 'he pleased himself by sight on account of his son's fatness.'

(8) *AgA'ñ* is the regular reflexive 'self' and *lA* the pronominal subject. *Qea* is from the stem of the verb meaning 'to look at,' but has the force of an instrumental prefix. *Guda* is probably the same as the word for 'mind', *gū'dAñ* ('he desired in mind by looking'). *-s* is the same suffix we have in *Gā'yagas*, taking the place of the regular past temporal ending *-GAn*.

(9) *HAn* is always used with the verb 'to say,' preceding or following a quotation. It has the force of English 'like this' or 'as follows.'

(10) *LA* is the pronominal object; *la*, the subject. The verb-stem is *sū-*, *-da* the causative auxiliary, *-aiya* the dieresis indicating perfection of action, and *-GAn* the past temporal suffix. This verb appears to be changed into the transitive by the causal auxiliary, but such is not the case. The verb is always transitive, whatever is said being evidently understood as its object.

(11) *Lgoa* seems to be an adverb here, not a subordinating prefix. *DAñ* is the regular objective pronoun of the second person singular, and *ɻ* the regular subjective pronoun of the first person singular. *Ta* is the common stem of the verb 'to eat,' *ɻiña*, the potential ending.

(12) *Ga'-istA* is compounded of the general subordinating prefix *ga-i*, 'that' (time, place, or what not), and *stA*, 'from.'

(13) *Lɻ* is the subjective pronoun of the third person plural; *is-* the shortened form of the verb 'to be'; *-gaw* is the same as *-gawañ*, the frequentative suffix which has dropped *ñ* before the subordinating prefix *a-i*. *ɻu* is the conjunction 'when,' and is really one of the subordinating prefixes so often alluded to. This clause might be rendered, 'when the coming home of them was accomplished.'

(14) *L'* is the personal pronoun of the third person singular. With the suffix *Gaw* it is used for the third person plural and is the subject of the verb. *-gi* means 'to finish,' and *a-i* is a subordinating prefix inserted like that in the preceding clause. *StA* is the same subordinating prefix we have had already in *ga'-istA*.

(15) *A'wuñ* is composed of the stem *ao*, 'mother,' and the possessive suffix *-añ* (or *uñ*), one's own.

(16) *Gi* is the subordinating prefix 'to,' *lA* the subject, and *sī'wus* the same verb as *sū'udas* without the causative auxiliary *-da*.

(17) In direct address terms of relationship or terms of respect take the subordinating prefix.

(18) *Dī* is the objective pronoun of the first person singular, *Goñ* the stem of the word for a man's father, and *-Ga* the ordinary possessive suffix.

(19) *Lgu* is used continually as a sort of indefinite object, meaning 'in what way,' 'in a certain way.' *L* by itself means the same thing, and *gu* is perhaps the subordinating prefix 'there,' 'at.'

(20) *Dī* is the objective pronoun of the first person singular, object of the verb following; *-da* is the causative suffix and *-s* the definitive.

(21) *Xō'ya* is the regular Skidegate word for raven. At Masset *ɣeɻ*, the same

word as that employed by the Tlingit, is used. Here it is the subject of the verb *sĭ'wus*.

(22) These two words have been discussed in the first line,

(23) *WA* is a particle used to sum up a preceding clause or statement when that is again referred to. Here it stands for the words, 'saying I have a mind to eat you.'

(24) *-da* is the causative auxiliary.

(25) *LA* is the objective pronoun, third person singular; *la*, the subjective. *Kil-* is the instrumental prefix indicating the voice as the agent; *-aiya* is the perfect, *-añ* the form of the past temporal suffix before *wAnsū'ga*.

(26) *-su-* is probably the stem of the verb 'to say,' and *-ga* an auxiliary, 'it is' or 'it was.' Possibly *wAn* is the same as *wA* in *wA'stA*.

(27) *Ga-i* is the general subordinating prefix; *stA*, the subordinating prefix 'from'; *hao*, the general demonstrative.

(28) *LA* is the pronominal object; *la*, the pronominal subject; *ta*, the stem; *gAñ*, the past temporal suffix.

THE OSAGE MOURNING-WAR CEREMONY

By GEORGE A. DORSEY

The material for the following account of this interesting Osage ceremony was collected in April of this year, while the writer was engaged in work, among certain tribes in Oklahoma, for the Field Columbian Museum. On only three of the four ceremonial days were observations made; whatever is here recorded of the other ceremonial day or of events after the ceremony, was obtained largely from Charles Michell, an English-speaking Osage who took an active part in the performance. It must be admitted at once that the present account is, at best, incomplete and fragmentary, and may be regarded of value only as an introduction to a more exhaustive study, which shall give due justice to this interesting rite and curious survival of ancient Osage ceremony.

The spirit of a dead Osage must be avenged, whether the dead be a child, woman, warrior, or old man; this is done by the sacrifice of the scalp of an enemy over the grave. The fulfilment of this obligation is in the immediate charge of a very near relative of the decedent. But before the scalp of an enemy may be obtained, it is necessary that certain rites be performed; in other words, there must be a war dance or ceremony. When, therefore, an Osage by the name of Nahashkŏshĭ lost a favorite son, he became a mourner and it fell to his lot to make provision for the war ceremony. But as there is considerable expense attendant upon the performance of this ceremony, Nahashkŏshĭ was assisted by other mourners, who also wished to satisfy the demands of their deceased relatives. These other mourners were Wainashie and his wife, and William Fletcher. As Nahashkŏshĭ, however,

was chief mourner, the preliminary work of preparation, and especially the choosing of the men to perform the ceremony, were largely in his hands. Therefore, after consulting with his friends he chose two groups — one for the north and one for the south — of four men each. These men were, for the north, Nahinshinka, William Pryor, Big Heart, and John Logan; for the south, Emory Gibson, Hisimoi, Hunkahapi, and Kowahatze. There were thus two men to each mourner, and they were spoken of as helpers.

The head-man of these two groups, together with the mourners, then appointed a time for the ceremony, and all the heads of families among the Osage were notified of the date. The ceremony was to be held at the permanent camp, about two miles east of the agency at Pawhuska. On the day preceding the beginning of the ceremony, the camp was largely augmented by the arrival of many friends of the mourners from Hominy, Gray Horse, and other points on the Osage reservation.

First Day

Early in the morning the four mourners, with their helpers, repaired to an open spot of the prairie lying just beyond and to the west of the camp. Here were selected two men whose duty it was to watch or guard the camp. Of these Tcepakake took his stand on the northwest and carried in his hand a new knife; on the southwest stood Weyekaha, carrying a new hatchet. While the others were making certain preparations the two leaders, Gibson and Nahinshinka, made the entire circuit of the large camp, the former making a dextral circuit, while the latter made a sinistral circuit. As they proceeded, all were careful not to cross their path and to keep out of their way. From time to time they cried out, "Something must die in the west!"

In the meantime two tents had been erected in a north-south line, facing west and about fifty yards apart. These and other preparations were made by younger members of different

societies who, whenever sent on errands, always ran, in accordance with one of the strict regulations of the ceremony. In the northern tent Nahinshinka and his companions took their place, while in the southern tent were Gibson and his followers. Walking back and forth between and in front of the two tents were the four mourners, each muffled from head to foot in a dark gray blanket. On the back of each was a tobacco-bag and a pipe suspended by a cord passing over his shoulders; each also carried a stout forked stick about four feet long, on which they supported themselves from time to time, for the mourners are not permitted to sit down from sunrise to sunset.

Also occupying the open space in front of the tents were two men who played an important part in the ceremony. These were Suquoiinka (Chicken Catcher) for the north side and Waiglainkia for the south side. Of these, Suquoiinka was the more important personage, as he was the real leader of the warrior party (*Washapewinwashowagre*). Both these men were naked except for a loin-cloth. They were painted on the chest with a large circular spot in black, from which extended two black parallel zigzag lines which terminated on the shoulder. Each also carried on his back a tobacco-bag with a pipe suspended from a bandoleer. Before one can assume the position of either of these two men he must have been a mourner several times and have given the ceremony. Preparations continued in each tent for the performance. Friends of the mourners and members of the warrior orders gathered at one or the other of the two tents, bringing with them two large drums. The eight helpers in the two tents now painted their faces, having brought with them bags or boxes of paint. Much of the facial painting was in colors, each man wearing his own appropriate paint. All eight men, however, decorated a portion of their faces with black, — the sign of war, — and all wore leggings and moccasins. Two of the men wore on their heads the Osage red and black ornament of elk and turkey hair.

A fire was now kindled to the north of the south tent, and at this the drums were warmed in order to tighten the heads. At about ten oclock the head-men of the two tents, Gibson and Nahinshinka, again made the circuit of the entire camp, the one from the north tent going by the way of the south, while the one from the south tent went in the opposite direction. They were mounted on horses, and each announced several times that the ceremony was about to begin and asked the men to go to the scene of the ceremony to dance.

On the return to the tents, those on the south side began drumming and singing, while William Pryor, from the north side, stepped out into the open space between the tents and danced. He carried a wooden staff about four feet long, terminating in a crook, and covered from end to end with cotton. He wore only a loin-cloth; the upper part of his body, including his face, was painted black, while on each leg were two parallel, zigzag lines also in black. At the conclusion of the song the drummers on the north side sang, while Hisimoi danced out from the south side. He also carried a crook, and was dressed and painted as was Pryor.

After a lapse of about half an hour, during which time many warriors appeared, arrayed for the dance, all four mourners began a circuit of the entire camp, going first south, then east, and returning by the north side. They were followed by the two head-warriors; then came the singers, with their drum, from the north side, who were followed by the eight assistants and all the dancers from the north tent. As they proceeded to make the circuit of the camp they halted from time to time and sang while all danced except the mourners and the two head-warriors. Pryor and Hisimoi carried their crooks, while Big Heart, Logan, Hunka-hapi, and Kowahatze carried shields on their backs. Each of the eight helpers also carried a large gourd rattle.

After their return from dancing around the circle they all rested for a while, except the mourners, warriors, and watchers,

who, as noted before, do not sit while the sun is visible. Then the circuit of the camp was again made as before, except that this time the drummers and dancers came from the south tent, while the circuit was to the north, east, and south, the exact reverse of the first course. By the time they had returned to the tents, nearly all the inhabitants of the camp had arrived, their number having been greatly augmented by the appearance at this time of two or three hundred children from the government school, which had been dismissed that the children might witness the afternoon performance.

At about two oclock prepared food in liberal quantities was provided for the warriors, helpers, and dancers. This was brought to the two tents by the women of the camp, most of whom came from the houses of the friends and relatives of the mourners. The musicians and all those who had danced voluntarily to show their respect for the mourners, ate first. Then a small portion of food was put into the mouths of the mourners, and after them the warriors and helpers ate. The women and children, all gaily dressed and resplendent in beaded buckskin, ribbons, and bright-colored shawls, then came forward, ate a little, and removed the remainder of the food. During the progress of the feast the two warriors kept crying out for the people to bring presents of goods to be given to the poor, and also for payment to the warriors and helpers for their assistance in the ceremony.

A rather long interval now followed, while the helpers and the volunteers repainted themselves in brilliant colors for the afternoon dance. When all were ready they again formed in line and danced entirely around the camp, as they had done during the forenoon, first making a dextral circuit, then a sinistral circuit, and so on until nearly sunset. The remaining dance of the day was to the setting sun. The drummers and singers of both tents now joined forces and took up a position directly to the west and between the two tents. Then the dancers of both sides came forward and danced in front of and to the west of the drummers. The two

sides did not unite, but danced in two concentric circles, open at one point, so that at one time the men from the north would be on the outside, then the two circles would continue moving until the men from the south would be on the outside. At the head of each line was a man bearing a standard which had stood during the day, one to the west of the north tent, the other just east of the south tent. The dancers now rested, while one of the warriors told his war story, at the conclusion of which they beat the drum. Then they sang and danced again, and rested while the other warrior related his war experience.

The sun was now about to set, whereupon the volunteers stepped to one side (the singers maintaining their position) while the eight helpers formed themselves into a crescent-shaped line in front of the musicians, all facing the west. At each end of the line was one of the two standard-bearers, while in front of them, and therefore not obstructing the western view, were the mourners, the two head-warriors, and the watchers. All the dancers now became seated, whereupon the musicians began a song and the head-man on the south side stood up, danced a few moments in the line, then stepped in front of the line and danced until the end of the song, when he resumed his place in the line and sat down. Another song was started, and the head-man on the north side, sitting next to the one who had just danced, arose and repeated the performance. Thus they continued to dance until each man in the line had had his turn, a man from the south side succeeding one from the north, and so on, back and forth, until the ends of the line were reached.

It was now nearly dark, and the performance for the day was at an end. Food was again brought and eaten as at noon. Then blankets were brought for the helpers and the two warriors, while four small, improvised canvas shelters were provided for the four mourners, the openings being toward the east. The musicians and all others who had volunteered their services during the day now repaired to their lodges for the night.

XUM

Second and Third Days

The performances on the second day were exactly similar to those of the first, except that there were no preliminary preparations, such as the selection of the ground, the erection of the tents, etc., although the announcements were made as before.

The method of procedure on the third day was like that of the second, except that on this day two additional crooks were introduced. These took precedence over the crooks carried on the first two days and were borne by the leading helpers of the two sides — Emory Gibson and Nahinshinka.

Fourth Day

Early on the morning of the fourth day the helpers and all those who were to take part in the ceremony brought to the tents their sacred bundles (*wahope*). They all now formed in line, the watchers first, then the mourners, warriors, drummers, helpers, and dancers, and proceeded to the west about two hundred yards, where they halted and made a temporary camp. A song was begun and the dancers danced for the benefit of the mourners. Then they danced in a circle, surrounding all who were to join in the hunt. Then the mourners thrust their forked sticks in the ground, the sacred bundles were opened, and a bird, usually a hawk, was taken from each one. The bundles were then tied up, and some of them were hung on the forked sticks while others were taken in charge by boys who were to go on the hunt. The birds were then suspended on the backs of all the warriors by means of buckskin bandoleers specially constructed for that purpose and always found in the bundle. The watchers and the mourners now remained behind while all the others set off to the west, armed with guns and bows and arrows, to spend the remainder of the day, or so much of it as might be necessary, in killing a deer. Of course in former times this was a war party and the object of their hunt was scalps.

As soon as a deer had been killed the party reunited and the helpers severed the head from the body; the head was then fastened down with the four crooks and left. The boys who had been carrying the sacred bundles in the rear came up in the meantime and repacked the bundles, placing the bird-skins back in their proper position. The entire party then returned to the mourners' camp, bearing with them the headless deer, upon which they feasted. One of the warriors had already provided himself with some human hair, which he now distributed among the mourners, in lieu of the scalps. As the hair was handed to each mourner, he exclaimed, "This is what I want! I am glad I have it!" Each mourner next visited the grave of the person for whom he had been mourning and deposited a portion of the hair over the grave; another portion was fastened to the bird belonging to the sacred bundle, while the remainder was attached to the stem of the pipe, which he had carried constantly on his back for four days. Thus ended the period of mourning.

Formerly, on the morning following the fourth day the bundles were opened and prayers were made to the bird for specific blessings, a stick for each blessing invoked being laid by the side of the bird. The bird was then painted and replaced in the bundle. Then followed four additional days of dancing and ceremony, celebrating the success of the war expedition.

XUM

EVANESCENT CONGENITAL PIGMENTATION IN THE SACRO-LUMBAR REGION

By H. NEWELL WARDLE

The subject of this paper is one which for some time has created considerable interest among French and German men of science, and my object in presenting it here is not to record any new observation but solely to call to the attention of American anthropologists the various aspects of the questions therein concerned.

Among certain of the darker races, a large percentage of the children present in the sacro-lumbar region one or more well-defined pigmented areas, varying in size, and ranging in color from an almost imperceptible gray to a blue-black or black. Such a color area may, as in the case observed by Dr Chemin,[1] extend downward and upward so as to cover the whole dorsal surface, from thigh to shoulder, including the posterior facies of the arms; in other instances, the more strictly localized sacro-lumbar pigmentation is associated with similar marks in the scapular and interscapular region.

Prof. E. Bælz, of Tokio, who was the first to record its observation and who has shown in the last quarter of a century a constant devotion to the subject, noted the appearance of such pigmented localities in the prenatal life of the Mongolian (Japanese?).[2] The record of all other authorities commences at birth, from which

[1] Chemin, "Note sur les taches congenitales de la region sacro-lumbaire chez les Annamites." *Bull. de la Soc. d'Anth. de Paris*, 1899, p. 131.

[2] "Zur Frage von der Klassen-Verwandtschaft zwischen Mongolen und Indianern." *Verh. der Berl. Gesell. f. Anth., Ethnol., u. Urgesch.*, 1901, S. 394. "Bei dem Mongolenfœtus habe ich Spuren von diesen Flecken im 4. Monat nachweisen können."

time until the child has reached an age varying from two to eight years (apparently depending more on individual peculiarities than on geographical locality), the blotches are visible with gradually decreasing distinctness. It was doubtless owing to its publication in a Japanese scientific journal[1] that the notice by Bælz long remained without confirmation by other observers, either for Japan or for other countries.

In 1893 Søren Hansen made known the results of his anthropological studies on the much mixed Inuit of West Greenland, and called attention to the presence upon some Eskimo neonati of discolorations, sometimes "so faint as scarcely to show," again of the deep blue of a bruise. He specifies and figures only four cases, two observed by himself, one by Dr Binzer, and one by Mr Ryder, although the wording of his communication leaves it to be inferred that more were known to him, at least by report.[2]

In 1896 Dr Matignon, a practising physician of Pekin, noted its frequency among the native children of that city,[3] and, in presenting the paper, Dr Collignon referred to a brief mention of evanescent congenital pigmentation among a number of Philippine tribes.

Three years more elapsed before Dr Chemin[4] called attention to the same characteristic markings upon the children of the Annamese of Cochin China and Tonkin, of the southern Chinese, of the Chinese-Annamese and Chinese-Siamese mestizos, and of the reputed full-blood Siamese of Bankok.

Closely following this, Dr Kohlbrügge,[5] in a communication regarding the anthropology of the Malay archipelago, postulates,

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[1] *Mitth. Deut. Gesell. f. Nat. u. Völkerkunde Ostasiens*, Bd. IV, S. 40.

[2] "Bidrag til Vestgrønländernes Anthropologi." *Meddelelser om Grønland*, Heft 7, S. 237–238.

[3] J. J. Matignon, "Stigmates congenitaux et transitoires chez les Chinois." *Bull. de la Soc. d'Anth. de Paris*, 1896, p. 524.

[4] Chemin, loc. cit., p. 130.

[5] Kohlbrügge, "Anthropologische Beobachtungen aus dem Malayischen Archipel." *Verh. d. Ber. Gesell. f. Anth., Ethnol., u. Urgesch.*, 1900, S. 398.

on the authority of a seven years' residence in that vicinity, the presence of these congenital stigmata among "all Malay and Indonesian peoples" — presumably within that circumscribed area.

W. von Bülow, whose interest in Polynesian anthropology is well known, was the next to come forward with information in regard to this much discussed character, determining its presence upon Samoan children of full and three-quarter blood, its absence upon those of half and quarter blood.[1] Von Bülow states that he has never seen more than a single discoloration of this character upon any child, and that such may be located upon other parts of the body. He distinguishes three types of birthmark, of which the second is permanent and appears to be the true nævus maternus.

In an article relating to the significance of evanescent congenital pigmentation, Monsieur Deniker[2] extends its known geographical range to Java, Korea, and Hawaii on the authority of a personal letter from Dr ten Kate.

This information has since been made public by Dr ten Kate[3] in a thoughtful paper in which the earlier data accessible to him are critically discussed. He found two forms of birthmark differentiated by the Hawaiians,—that type which forms the subject of the present essay and a second permanent red nævus, evidently

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[1] W. von Bülow, "Die Geburtsflecken der Samoaner." *Globus*, Bd. LXXVIII, S. 209. "Bei Ehen in denen die eine Partei samoanischen Ursprungs, die andere Partei aber Halbblut aus Samoaner und Kaukasier ist, *kommt* dieses Zeichen der Kinder *meistens* — nicht immer — *vor*. Bei Verbindung von Weissen mit Samoanern oder mit Halbblut Samoanern kommt dieses Zeichen an den Kindern *meistens nicht* vor. Die Samoaner behaupten das dieses Mal ein sicheres Zeichen der Samoanischen Abstammung sei." The italics are mine. I quote the passage in full, since the personal equation seems to have entered into the translation by the distinguished anthropologist, M. Deniker, when he remarks "cette tache . . . sert de signe pour reconnaitre les Samoans pur-sang car elle *ne reparait jamais* chez les enfants issus de l'union de blancs avec les Samoans purs ou demi-sang; elle est *même rare* chez les enfants nés des parents Samoa et demi-sang." — Les taches congenitales dans la region sacro-lombaire considerées comme caractère de race. *Bull. de la Soc. d'Anth. de Par.*, 1901, p. 277.

[2] J. Deniker, loc. cit., p. 278.

[3] Der Pigmentflecken der Neugeborenen, *Globus*, Bd. LXXXI, S. 239.

corresponding to von Bülow's third type. In the interracial marriages of Japan he recognizes, as did Bælz, a dependence of the frequency of its presence on the degree of blondness of the European father. His knowledge regarding Java proves to be based on personal communications from his colleagues, Dr Baumgarten and Dr Kohlbrügge, the former of whom noted at least one instance of permanency of these pigmented areas and gave about 90 as the percentage in which the evanescent discolorations occur upon the issue of Europeo-Javanese unions. No evidence relating to Korea is here brought forward by Dr ten Kate.

With the exception of the foregoing, the latest information[1] on the subject, so far as my knowledge goes, comes simultaneously from Messrs Riedel and Bælz. The former records having "observed the so-called Mongolian marks upon children of the Celebes and other Indonesian islands — even upon a young Papua girl." The latter notes its appearance on two Amerind children.

Thus, the geographical area throughout which this evanescent nævus is known to occur, more or less sporadically, extends from Greenland on the east to Madagascar[2] on the west—Danish Greenland, Vancouver, Hawaii, Samoa, Corea, Japan, China, the Philippines, the Celebes, Java, Malay archipelago, Indo-China, and Madagascar. As will be seen, it embraces more than one ethnic division,—Amerindian, Polynesian, Papuan, Malayan, Indonesian, Negritan, and Mongolian.

Basing their hypothesis on the ground of its great frequency among children of Mongolian race, and overlooking its apparently equal prevalence among the Samoans, both Bælz[3] and Deniker

[1] *Verh. der Ber. Gesell. f. Anth., Ethnol., u. Urgesch.*, 1901, S. 393.

[2] Chemin, loc. cit., p. 132. "Un de mes camarades m'affirm avoir remarqué le même caractère chez les enfants Malgaches."

[3] Indeed Bælz goes so far as to say: "Every Chinese, every Korean, every Japanese, every Malay is born with a dark blue . . . mark" (loc. cit. S. 188)—a statement wholly unwarranted by the fact that less than half a dozen men have observed certain definite, though large proportions of cases wherein the stigmata occur. The highest which I have found recorded is 89 % (Chemin), which is greatly in excess of any other statistical datum.

elevate the evanescent congenital pigmentation to the position of a racial character, and ascribe to it Mongolian or Mongoloid significance. Søren Hansen, on the other hand, who knew of it only in West Greenland and Japan, but shrewdly suspected its presence in southeastern Asia, attributes it to a substratum of Negritan ancestry.[1]

Great stress is laid by Deniker on the fact that both the West Greenland Inuit and the Samoans regard such marks as a sign of pure descent—i. e. from natives relatively free from intermixture with the white race. This is, at most, an interesting item of folklore. The natives of Samoa are much crossed with immigrating peoples from other island groups, while it "is doubtful if a single Eskimo of pure blood can be found along all the west coast" of Greenland.[2] Had Hansen's observations been made on the Inuit of Alaska, where the foreign element has been introduced largely by intercontinental trading and by whaling vessels with their Polynesian sailors, it could have possessed no weight. As it is, the occurrence has remained unexplained, save as the survival of a racial character either Mongolian or Negroid in type.

[1] Hansen, loc. cit. "I desire, however, to direct attention to the possibility that it may indicate, as it were, an atavistic rudiment, a sort of a token of descent from a swart race element; neither is such far to seek, since it has (already) been pointed out in southern Japan. Yet is this solely a guess, but in any case that is no reason that one lull himself to rest with the thought that it turns upon a simple curiosity, and, as for the rest, one finds here and there in West Greenland divers individuals whose very dark skin color points in the same direction. Meanwhile this question can best be solved by closer researches in Japan and southern East Asia, and such are not yet forthcoming."

[2] Ibid. Résumé, p. 274. M. Deniker, in quoting Hansen, has unfortunately overlooked the word *stærkt*, "strongly," which materially alters the meaning. For this reason, and because the Danish publication is not very accessible, I give the sentence at length with its translation: "Denne Ejendommelighed, som synes et være konstant hos Japaneserne, og som utvivlsomt ogsaa findes hos andre østasiatiska Folkeslag, betragtes af Vestgrønlænderne som et sikkert Tegn paa en ren eskimoisk Afstamning, hvad den ogsaa synes at være forsaavidt som den ikke vides a være iagttaget hos Børn af stærkt krydset Afstamning," p. 237. This peculiarity, which seems to be constant with the Japanese and undoubtedly also occurs among other East Asiatic peoples, is regarded by West-Greenlanders as a sure token of a pure Eskimo origin, which it also seems to be in so far as it is not known to be observed among children of strongly crossed origin.

In view of the present setting of a current of fashion in matters anthropological, in the direction of the tripartite division of the human species, proposed by the writers of the early half of the last century, it is not surprising that Herr Bælz calls for a study of the "Alpine race" of Europe with the object of establishing the presence of transient pigmentation upon the neonati and hence the Mongolian origin of the darker peoples of that continent.[1] Equally important from the same viewpoint is his observation of the "Mongolian mark" upon two Amerind children, if, indeed, the wish were not father to the observation, for he writes: "I have concluded that this presents a real character of the whole Mongolian race which one should also use for the solution of the much disputed question of the relationship between the Mongols and the North American Indians. I have now had the opportunity of examining in the mission station at North Vancouver, in British Columbia, two Indian children, one pure-blooded of two years, and a half-blood of eleven months. *Both children showed the blue marks*, but, it must be admitted, much less distinctly than do Mongolian children, so that one must look closely in order to notice them."

But I believe it must be admitted that even racial characters are, in the last analysis, dependent upon physiological causes, and as yet no one has attempted to inquire into the basic principle of this noteworthy stigma. Is it possible to assign its origin to the prenatal influences of custom and environment, acting upon an organization peculiar to Mongoloid — or Negroid —peoples? I think not. Climatic diversity precludes the ascribing of such remarkable results to heat and moisture. Were the Inuit alone involved, the almost torrid heat of the igloo interior might be adduced as a rather unsteady support of the hypothesis, but, excluding the Eskimo, the geographical range appears to extend from 50° north to 20° south latitude. But aside from

[1] Bælz, *Verh. der Ber. Gesell. f. Anth., Ethnol., u. Urgesch.*, 1901, S. 393.

this, the observations of Bælz on thermal pigmentation indicate that the cutaneous deposit of carbon as the result of exposure to heat, is not in circumscribed areas, but in a net-like complex. He notes this peculiar pigmented reticulation upon the lower extremities of Japanese merchants who sit on the edge of their "kotatsu," the heated excavation into which the feet depend, and which is covered by the robe, — among European marketwomen, who keep in winter a charcoal brazier under their gowns, — and also over the whole cutaneous surface of the professional bathing masters of European baths.[1] Since the manifestation of the effect of heat upon the skin materially differs from the discolorations under discussion, it is perfectly clear that any thermal influence upon the prenatal life of the child must be excluded.

One other hypothesis presents itself, one which was vaguely foreshadowed by Dr Chemin when he suggested that "these nævi may well be, so to speak, reserves of pigment (which are) used up in early life."[2]

The problem which I offer for consideration is this: May not these evanescent congenital pigmented areas be regarded as the nuclei of more general pigmentation, the regions wherein occurs the first deposition of the cutaneous pigment normal to the darker races and peoples, and is their apparent disappearance not to be explained by the deepening of the tint of the whole body surface?

The peculiarity of the blotches as observed by Bælz would seem to be that the pigment was found not in the deeper cells of the rete Malpighii, but in that part of the dermis adjacent thereto[3]; nevertheless, if Monsieur Bloch is correct, the normal development of pigment in the outermost dermal cells is a well established fact.[4] When it is remembered that the cells of the rete

[1] Ibid., p. 206.
[2] Chemin, loc. cit., p. 131.
[3] Deniker, loc. cit., p. 276, footnote. Also Bælz, loc. cit., S. 189.
[4] Ibid., in discussion, p. 281.

mucosum are derived from those of the dermis, the fact that the pigment of the so-called Mongolian mark is situate not in the deep epidermal cells but in the underlying dermal tissue becomes very significant, for it would seem to be precisely in the latter layer that the earliest deposit should be expected.

Von Bülow's statement that, owing to intermixture with other oceanic peoples, the color of the Samoans ranges from light brown to almost black, and that in accordance therewith varies the age at which the mark disappears, might be construed in favor of this supposition; but his personal knowledge of cases where the discoloration is permanent, *especially among dark-complexioned natives*,[1] presents a condition which would remain unexplained.

One other observation seems to militate against this theory. Dr Kohlbrügge remarks that the natives of the Malay archipelago are as fair as the immigrated Europeans, but the native children are more highly pigmented than the adults,[2] a statement which I am unable to reconcile with the hypothesis.

Should this prove to be the real solution of the question, we would expect to find such nuclei of pigmentation appearing early in the interuterine life of the negro. I am not aware whether or not this is the case, but according to Dr Chapman "the color of the dermis in the negro is the same as that of the white, and the whole skin of the negro fœtus is as pale as that of the white one, the pigment being developed in the deep cells of the rete mucosum only at or after birth."[3] Deniker, it would seem, is unaware of this, for in discussing the occurrence of the transient birthmarks among the natives of the Philippines, he takes occasion to say that "the pure Negritos could not have the pigmented marks upon their black skins; it probably refers there to mixed

[1] Von Bülow, loc. cit. "Doch kommen auch Fälle vor in denen dieser Fleck, —besonders bei dunkelfarbigen Eingeborenen—nie schwindet. Solche Fälle sind mir bekannt." Unfortunately he fails to state the distinction between such permanent forms of the *o le ila* and the second type of *ila*, the permanent mother's mark.

[2] Kohlbrügge, loc. cit.

[3] H. C. Chapman, *Treatise on Human Physiology*, 1899, p. 701.

Negrito-Indonesians."[1] It is for the specialist and for those better acquainted with the abundant literature relating to the negro to investigate this phase of the subject. Should such stigmata occur, and yet have remained unrecorded, for Africa, by travelers, the cause of the omission may lie in the widespread custom of darkening in smoke, or otherwise, all infants who do not attain to the correct tribal tint, a custom which is also in vogue in Samoa.[2]

Again, should the hypothesis advanced in this paper be correct, the presence of early pigmentation would be microscopically noticeable among the darker groups of the Eurafrican race, without in any sense predicating for them Mongoloid affinities. That such evanescent pigmentation does occur within the limits of this race, when expatriated, is shown by Dr Baumgarten's observation that "among full-blood Europeans also, this mark occasionally, though rarely, appears."[3]

It is greatly to be desired that the whole problem be considered by American anthropologists *sans parti pris*. We have here facilities for such study which do not exist in Europe. Of far more importance than the pointing out of racial characters is the discovery, the study, the verification of the fundamental principles of growth involved in the production of those race characters, when such in fact they prove to be.

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[1] Deniker, loc. cit., p. 276.

[2] Von Bülow, loc. cit.

[3] Quoted by ten Kate, loc. cit., S. 240.

TROPICAL ACCLIMATIZATION

By J. ELBERT CUTLER

The fact that the white race has spread rapidly over all the fertile regions of the temperate zone and that emigration is now turning toward the tropics, gives special importance to the question of tropical acclimatization. Much has been written in a general way about the colonization of the tropics and the dangers of a tropical climate, but little has been done toward a scientific investigation of the phenomenon to which the name acclimatization is given. If it can be shown, however, that it is possible for the white man to become completely acclimated in the tropics, much will have been accomplished.

So late as 1850 Dr Knox of London declared that Englishmen transplanted to America and Australia must inevitably deteriorate and would die out in a few generations. The absurdity of such a statement does not need to be pointed out, but it is to be noted that this suspicion of the temperate zone has now been transferred to the hotter region, and that those who adopt this attitude rely on the very arguments which were brought forward against the acclimatization of Europeans in the more temperate regions of North America and Australia, viz., an enormous death-rate, physical deterioration, and reduced fertility. Modern science demands a thorough reëxamination of these arguments and the alleged facts supporting them. In an able paper read before the Royal Geographical Society in April, 1898,[1] Dr L. W. Sambon pointed out the absurdity of many of the opinions hitherto held in regard to acclimatization in the tropics and presented some

[1] *Geographical Journal*, 1898, vol. XII, p. 589.

strong evidence in support of his position. Much of the following is taken from or suggested by Dr Sambon's monograph.

The pessimistic opinion in regard to tropical climate arose at a time when scientific knowledge was in its infancy, and as a result of the popular discussion of the question by statesmen, geographers, meteorologists, and journalists, the old theories based on obsolete and erroneous medical opinions still prevail in the public mind. It has been repeatedly asserted that a tropical climate in itself has a peculiar effect on the human body and its functions. Ripley states it in the following words, which may be considered a very good summary of the views held on the subject by the French authorities and others: "Respiration becomes more rapid for a time, although it soon tends toward the normal; the pulse beats more quickly; the appetite is stimulated; a sur-excitation of the kidneys and sexual organs ensues; the individual as a rule becomes thinner; the liver tends to increase in size, which is, perhaps, the cause of a certain sallowness of the skin; in females, menstruation is often disturbed, the age of puberty being sooner reached."[1] In another place this author says that heat is the cause of humidity and generally accompanies it. This retards radiation through perspiration and is the cause of physiological disturbances; the blood is not properly purified and anemia ensues, if more immediate effects do not manifest themselves in intestinal disorders. But the force of all this is lost when he adds, in conclusion: "The exact nature of the physiological processes induced by the tropics is, however, so imperfectly known that we must in general rely upon concrete experience for our further conclusions."[2]

At one time malarial fevers were attributed to moonshine just as anemia, hepatitis, and sunstroke are still attributed to heat. In the annual report of the United States Army to the Secretary of War, heatstroke is classified, along with drowning and

[1] Ripley, *The Races of Europe*, 1899, p. 574.
[2] Ibid., p. 578.

lightning stroke, under injuries. Dr Sambon asserts that anemia is never caused by heat, and cites the observations of Maurel, Marestang, Eijkman, and Glogner, who have proved beyond doubt that in tropical regions the influence of high temperature causes no change in the proportion of red corpuscles in the blood. The various diseases of the liver met with in the tropics are common among Europeans in temperate regions, but their accepted etiology is forgotten and they are curiously attributed to heat. Through bacteriology, then, the parasitic nature of malaria, anemia, and hepatitis have now become recognized. Sunstroke has remained the one condition that authors could bring forward to prove the noxious influence of heat. Dr Sambon thinks that this is also an infectious disease. Its premonitory symptoms indicate clearly a period of incubation. Its relapses, its morbid anatomy, its peculiar geographical distribution, its epidemic outbursts, the conditions of climate and soil under which it prevails, the relative immunity to its attacks afforded by acclimatization, all clearly point to the specific infectious nature of the disease.

Dr Sambon, however, draws a distinction that most writers do not make. Instead of classing heat exhaustion and thermic fever together under the head of sunstroke, he separates them. Heat exhaustion he calls syncope, and thermic fever is, therefore, the specific infectious disease to which he has reference. To this he gives the name siriasis, the oldest name for it, used by the ancients because they thought it occurred in the hottest months when Sirius, the dog star, rises and sets with the sun. The prevalence of siriasis, like that of enteric fever, cholera infantum, and other infectious diseases, is closely connected with summer, but it is important to remark that this connection with the hottest season does not necessarily imply a connection with the highest temperature. Indeed, it has often been observed that the hottest days and hottest years are not those in which the disease especially occurs, and again, it is not always found in the warmest regions. Many of our workmen, such as metal-casters, glass-blowers,

furnacemen, and stokers, are exposed for hours together to far greater heat than ever emanated from a tropical sun, yet they never suffer from siriasis. Men who work in Turkish baths are subjected to a high temperature and a moist atmosphere, two conditions which have been regarded as peculiarly conducive to siriasis in the tropics, but these men suffer mainly from rheumatism and tuberculosis. In the United Consols mines at Gwennap, in Cornwall, the temperature is 125° F. Siriasis has never occurred among its miners; their special disease is tuberculosis.

Siriasis must be distinguished carefully from syncope, alcoholic coma, cerebral hemorrhage, epilepsy, and especially from cerebro-spinal fever and pernicious malaria. Syncope is common among old stokers,—"stoker's collapse",—who are very liable to cardiac affections on account of their laborious occupation and of their free indulgence in strong drink. It is very frequent among soldiers, who likewise suffer exceedingly from circulatory disorders. Soldiers fall unconscious from syncope on parades. Col. Charles R. Greenleaf, chief surgeon, Division of the Philippines, in a report dated May 31, 1901, says: "It is an interesting fact that heatstroke generally so much feared in the tropics is practically unknown here; men often drop out on the march overcome by heat, but fatal stroke and lasting heat exhaustion is very rare."[1] Dr Patrick Manson, of the London School of Tropical Medicine, says that heat and moisture are not in themselves the direct cause of any tropical disease.[2] Ninety-nine per cent of these diseases are zymotic and are caused by germs requiring a tropical habitat. Disease germs are as much members of the fauna and flora of a country as are the other living things found in it, and they are amenable to the same laws and conditions determining geographical distribution. Chief among these conditions are heat, moisture, and the nature of the soil.

Much remains to be done in this field of investigation, but the

[1] *Report of the Surgeon-General of the Army*, 1901, p. 132.
[2] *British Medical Journal*, 1898, vol. 1, p. 1168.

opinion that the microbe is the real enemy which is to be met in the tropics, is strongly supported by some of the highest authorities in tropical pathology.[1] If this be true, then it is as possible to combat the microbe in the tropics as in the temperate zones, by sanitation and hygienic precautions.

The same difficulties which oppose the colonization of tropical lands at the present time were met by the ancient Greeks when they colonized Sicily and southern Italy. Malaria was rife in all the places which offered the best commercial prospects. In England malaria has almost entirely disappeared, but in Italy it is still deadly to the laborers of the Roman Campagna and the rice-fields of Lombardy. The French thought at one time that they would never be able to thrive in Algeria, because the climate was considered deadly to Europeans. Now invalids are sent to that country, many of the localities having obtained the reputation of excellent sanatoria. The West Indies, which used to be considered the "white man's grave," now rank among the best health resorts. The death-rate of European troops in the tropics, which used to be 129 per 1000, is now as low as 12 per 1000 in India. In Trinidad and Barbadoes sickness and mortality among the European soldiers are actually less than at home. Only a century ago smallpox was as great a scourge in the temperate zone as tropic fevers are today in the tropics, yet science has reduced that evil to relative insignificance. Hygiene and sanitation have thus accomplished much, both in the temperate zones and in the tropics, and certainly much more may be expected from wider experience and further knowledge.

A fact which gave rise to the pessimistic notion about tropical colonization was the fearful mortality among the first white visitors to tropical shores. This, however, may be explained by their insanitary ships, their insanitary habits, and their ignorance of tropical conditions of health. The fertility of the land and the conveniences of trade have generally determined the

[1] *British Medical Journal*, 1898, vol. 2, p. 912.

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location of settlements on the deadly alluvial soils at the mouths of rivers. Towns thus built in the very worst places in consideration of their apparent value, but totally regardless of their qualities with reference to health, are largely responsible for the reputation of unwholesomeness which is associated with tropical countries. Bordier says that in a general way the mortality of a race increases in the measure that it displaces itself toward the equator.[1] Such a statement is too sweeping, and it leaves out of consideration many elements which may be eliminated. Climates do not depend entirely on geographic position, for they are affected largely by a variety of conditions, such as the distribution of land and water, the nature of the soil and the vegetation, elevation or depression, and the character of the land at or adjacent to the place under consideration. Facts do not bear out the assertion, for the Spaniards and the Portuguese, according to Bordier himself, have a lower mortality rate in Cuba than in Spain.

Alfred Russell Wallace, who lived and worked for twelve years within ten degrees of the equator, in the Amazon valley and the Malay archipelago, says[2] that the great trading centers of tropical America from Havana and Vera Cruz to Rio de Janeiro owe their extreme unhealthfulness to two main causes: first, the absence of all effective sanitary arrangements among the native population, and second, the fact that they were for several centuries emporiums of the slave trade. The slave ships reached their destination full of indescribable filth, which year after year was poured into the shallow water of the harbors and soon formed a permanent constituent of the soil between high and low water marks. In the East there were no such slave ships and there is no yellow fever. Mr Wallace goes on to say that his own experience has shown him that swamps and marshes near the equator are perfectly healthful so long as they are left nearly

[1] Bordier, *La Colonisation*, 1884, p. 91.
[2] *Independent*, March, 1899.

in a state of nature, that is, covered with dense forests and other vegetation. It is when extensive marshy areas are cleared for cultivation and for one-half of the year are dried up by the tropical sun that they become deadly. He lived for months together in or close to tropical swamps in the valley of the Amazon, in Borneo, and in the Moluccas, without a day's illness, but when living in open cultivated marshy districts almost invariably had malarial fever. Malarial fever, therefore, he attributes to ignorant dealing with the soil and not in any sense to climate. Bordier is of the opinion that the danger of hot climates resides mainly in marshes. He says that health on board ship in the tropics is generally good and that disease usually makes its appearance when a ship approaches the coasts and the winds come from the shore. Sir Harry Johnston, in the discussion following the reading of Dr Sambon's paper before the Royal Geographical Society, said that it had often been remarked to him by Europeans in Central Africa and that he had said over and over again to himself: "What a delicious climate, but what a cruelly unhealthy place!" In Dr Livingstone's book on the Zambesi expedition he remarks and quotes the statements of several naval officers to the effect that the climate "is like that of Italy." Thus medical experts and travelers agree that it is not the climate in itself that makes the tropics dangerous to the white man.

In this connection it is worthy of note that among the officers of the various life-insurance companies there is a growing opinion in favor of removing from policy-holders all restrictions as to residence or travel, and extending insurance to residents of the tropics on the same terms as apply in temperate regions. Of the sixty-four leading American life-insurance companies, on May 1, 1901, thirty-seven placed more or less restriction on tropical exposure — four permanently forbidding it without a special permit; twenty-four, for two years after the issuance of the policy; eight exempting it for one year; and one forbidding it without a special permit for the period from July 1 to November 1. The

remaining twenty-seven companies placed no restrictions whatever on their policy-holders as to residence or travel.[1]

In a report to the Secretary of War, under date of February 4, 1899, in response to the United States Senate's resolution of January 30, 1899, calling for a statement as to the sickness and mortality among the soldiers in the Philippines, Surgeon-General Sternberg made the following statement: "I have to submit that climatic diseases do not appear so far to have been attended with unusual mortality. Malarial diseases have caused no deaths. The total death rate, taken from reports submitted by medical officers for the months July to October, inclusive, equals an annual death rate of 9.36 per 1000 men. This is only slightly in excess of that which prevails in the garrisons of the United States in time of peace. The average annual rate of our army for the decade 1886–1895 was 7.12. Typhoid fever in the Philippines caused deaths equal to an annual rate of 5.16 per 1000 men, or more than half the total death rate. If the deaths from this fever — which is not a climatic disease — be excluded from consideration, the remaining mortality from all causes in the Philippines would be less than the corresponding mortality in the United States." In his report for the year 1900, based on data reviewing the United States Army's experience in the Philippines as late as August 16, 1900, he also says: "The opinion is prevalent among our medical officers that in time of peace and doing only garrison duty the sick rate of the army in the Philippine Islands would be no higher than it ordinarily is in the southern United States." From the close of the calendar year 1900 to the latest reports the health of the troops in the Philippines had been steadily improving. Smallpox, so prevalent and deadly in the early occupancy of the islands, has been almost entirely suppressed. Dysentery, constituting 13.44 percent of all cases of sickness, is the dangerous disease. The health of the troops serving in Cuba was excellent during the year. The medi-

[1] Phelps, *Tropical Hazards*, 1901, pp. 113–114.

cal record of the troops in Porto Rico for the year 1900 is an excellent one, comparing favorably with that of the troops serving at the home stations.[1]

Heatstroke receives but slight attention in the Surgeon-General's reports as a cause of disability in the tropics. In his report for 1900, speaking with reference to the prevalence of heatstroke in the entire army, he says that it occasioned 544 admissions in 1898, equal to 3.68 cases per 1000 men, with nine deaths and twelve discharges for disability; and in 1899, 204 admissions, equal to 1.93 cases per 1000 men, with two discharges but no death.[2] The experience of the United States army in the tropics would seem to support Dr Sambon's position.

Most tropical diseases, like diseases elsewhere, are caused by germs or parasites. These parasites, to maintain their existence, must pass, at some time or other of their life histories, from one human body to another, and must contrive to live during this passage for a longer or shorter period in outer nature. During this temporary extra-corporeal existence, the conditions—temperature, soil, and other intervening factors—must be suitable. Hence arise the peculiarities of geographic distribution of the various germ diseases.[3] Dr Manson holds that there is a weak and unprotected point in the life history of every parasite, and since most diseases are caused by parasites, it is possible, did we but know this unprotected point, to stay disease. So firmly has he come to believe this that his opinion on the subject of colonization of the tropics has completely changed. In the discussion following the reading of Dr Sambon's paper, he stated that, contrary to his former opinion, he now thoroughly believes in the possibility of tropical colonization by the white race and that its postponement is merely a matter depending, first, on the growth of knowledge, and second, on the general assimilation and rational application of this knowledge.

[1] *Report of the Surgeon-General of the Army*, 1901, pp. 128–129.
[2] Ibid., 1900, p. 285.
[3] *British Medical Journal*, January 9, 1897, p. 94.

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Many writers admit the possibility of acclimatization in the tropics, but assert that the white man in the process of acclimatization will degenerate into an inferior race. On this point we have conflicting testimony. Sir William Moore, for some years medical officer and secretary of one of the hill asylums for European children founded by Sir Henry Lawrence, in India, states that he found the physique of the children, especially that of the females, much inferior in after life to that of children reared in England. To offset this we have the statement of Dr Sambon, who says that thirty years ago Sir Joseph Fayer conclusively proved, from the experience of Lawrence Orphanage, that under proper management children could thrive in India as well as in England, not only in the hill stations but in the very plains of Bengal. The reason for the general opinion is the fact that children are often reared in unhealthful districts and are foolishly managed. For fear of diseases wrongly attributed to solar heat, they are constantly shut up in stuffy and darkened houses, bringing about conditions favorable to the development of the very diseases they seek to avoid. Under similar conditions children thrive no better in England.

Dr G. M. Giles, in medical charge of the Lawrence Military Asylum, Sanawar, Punjab, says: "I am inclined to doubt if there be any marked differences between children reared in India and in England; at any rate, if they get a fair share of the hills. The fact is, that the notions that have sprung up on this point are without exception the result of desultory, general observation, entirely unchecked by the numerical method. Take the oft-quoted statement that you cannot find a single fourth-generation European raised in India and the deduction thence that Europeans deteriorate in India. Where are you to find such a case among people of our habits? The darkest Eurasian will always speak of England as 'home', and if he can only get the money will go there himself and send his children there to be educated. Now, a family too poor to send their children home is hardly

likely to keep up a family history going back many generations, and if they know all about their grandfathers it is as much as can be expected. Few middle-class people, even in England, can go beyond their great-grandfathers. Hence the statement, though probably true, will not bear the deduction; as whatever the influence of climate may be, the fact depends on the social customs of Anglo-Indians, which are such that it is scarcely conceivable that one should find a family that could give an authentic history for four generations and yet had been so poor as to be unable to have its children brought up at home for a more or less considerable portion of their rearing — to say nothing of the fact that it would be practically impossible for such a family to find other similar families quite free from Asiatic blood with which to intermarry through so many generations. . . . The fact is, from the nature of the case it cannot occur, and so cannot be tested.[1]

The assertion that a tropical climate *per se* induces deterioration can hardly be maintained. In Europe itself today there is appalling deterioration due to tuberculosis, rickets, and syphilis, and there is no reason to suppose that any deterioration that takes place among Europeans in the tropics should be due purely to solar influences. Deterioration in the tropics, as in Europe, is that condition of organic failure which is characteristic of long-continued (chronic) diseases, such as tuberculosis and leprosy. The two great causes of deterioration in the tropics among Europeans are malaria and tuberculosis. Dr Knox asserted that Europeans settling in America would inevitably deteriorate, but results do not confirm his statement. Other cases of a similar nature might be mentioned.

Coupled with this notion about deterioration there has been prevalent for many years a belief that sterility of the white race ensues after three generations in the tropics. After giving some

[1] *Report of the Seventh International Congress of Hygiene and Demography*, 1891, vol. x, p. 184.

evidence both pro and con, and pointing out the difficulties of eliminating the effects of crossing with the natives, or else of marrying with newly arrived immigrants, Ripley concludes that sterility from climate as a single cause can neither be affirmed nor denied, from utter lack of evidence. Fritsch, the German ethnographer, says that although sterility may result, there is no direct evidence to prove it. Prof. B. J. Stokvis (Amsterdam) makes this statement: "In the only places of which I can personally speak—the Dutch West India Colonies — pedigrees are to be had of true European families, persisting for almost three centuries, without introducing a drop of native blood."[1] Spanish women in Guayaquil, on the authority of Dr Spruce, cited by Wallace, in a region where the temperature is seldom below 83° F., and in complete absence of intermarriage with the natives, are the finest along the coast, and the white population is exceedingly prolific. Clements R. Markham, in a paper read at the Seventh International Congress of Hygiene and Demography, gathered all available information, much of which he had collected himself, and proved that families of pure European blood had been settled for upward of two centuries in places within the tropics and that in each case living representatives were quite the equal of their progenitors in moral and physical development. According to Wallace,[2] the editor of the *Ceylon Observer* adduces case after case of officers, planters, doctors, etc., who have lived from twenty-five to fifty-eight years in Ceylon and have retained almost continuous good health. He also refers to Dutch families descended from settlers who came out from one hundred and fifty to two hundred years ago and who have maintained average good health even in the heat of the plains. In the Moluccas there are even more striking examples, many of the Dutch families having been continuously on the islands for three hundred years and they have

[1] *Report of the Seventh International Congress of Hygiene and Demography*, 1891, vol. x, p. 185.

[2] *Independent*, March, 1899.

still the fair complexions and robustness of form characteristic of their kinsfolk in Holland. The government physician at Amboyna, a German, thinks the race is quite as prolific as in Europe, families of ten or a dozen children being not uncommon. There are many examples of continued and even increased fertility. On the authority of Dr Sambon, I may say that the Spaniards in their own country have a birth-rate of 37 per 1,000, in Cuba 41, in Algeria 46, while the French have a birth-rate at home of 26 and of 41 in Algeria. In an address before the New England Free Trade League, in November, 1901, Gen. James H. Wilson spoke in the following terms: "Speaking from my own observation and somewhat extended study of the question, I have not the slightest doubt that the white man can and does maintain his social efficiency unimpaired, at least in all insular tropical countries, and especially in the Greater and Lesser Antilles. He is just as prolific and industrious, class for class, in those islands as he is in the country from which he comes, and there is absolutely no reason why he should not be. In the first place, the climate and temperature of Cuba and Porto Rico are at all times better and more equable than in any of our states in the Mississippi valley south of the Ohio and Missouri rivers. It is warmer and more balmy in winter, and cooler and more agreeable in summer in those islands than it is in Tennessee, Arkansas, Louisiana, Texas, Mississippi, Alabama, Florida, Georgia, or South Carolina, and no one can properly claim, since the war of the rebellion and the economic reconstruction which followed the abolition of slavery, that the white man has physically degenerated in any of the southern states." [1]

The belief that the white man cannot work in the tropics has arisen largely from the assertions of advocates of colored labor. It is true, however, that the turning up of a virgin soil is frequently dangerous in the tropics. Hong Kong was especially unhealthful during the first years of occupancy, and Wallace, as

[1] *New York Times*, Nov. 10, 1901.

quoted above, refers to the unhealthfulness of cultivated marshy areas. With this in mind, however, Wallace declares it is not the fact that white men cannot permanently live and work in the tropics. Work of some sort, there as here, is a condition of healthy life. At Para, in 1848, Mr Wallace says he saw a striking case of how a white man can work in the tropics. A young Scotchman had turned milkman for a village, and notwithstanding his hard work, with the temperature from 80 to 90 degrees or upward every day, he was the picture of health and appeared to enjoy his life.

It is a well known fact that in Ceylon and India the men who enjoy the best health are the enthusiastic sportsmen. They seize every opportunity of getting away from civilization and often submit to much privation and fatigue with benefit, rather than injury, to their health. The tea planters of Assam furnish a remarkable illustration of the safety with which Europeans may expose themselves in the hottest sun. Tea planters are a large class and their duties require them to be out in the hottest season and at the hottest time of the day. Sailors do their regular work when stationed in the tropics and do not suffer injury either from the climate or the labor, if not exposed to infectious diseases while on shore. The climate of Queensland is completely tropical, yet white men work in every part of it. In a report made by an officer in the Signal Corps of the United States Army, Division of the Philippines, the statement is made that the men who have the hardest work and most exercise seem to be well, the variety of their work accounting in a measure for their health.[1] The fact seems to be that white men can live and work almost anywhere in the tropics if they are obliged to do so, and unless they are obliged, they will not work, as a rule, even in temperate regions. Wherever there are inferior races they are subjugated by the white man and forced to work for him.

Some writers have advocated crossing with the natives as

[1] *Report of the Surgeon-General of the Army*, 1901, p. 130.

a means of acclimatization. In the strict sense of the word it is not acclimatization at all and it is certainly not essential to acclimatization. While intermarriage is said to be the secret of Spanish permanence in Mexico, the Portuguese who intermarried with the native women in India have been almost entirely absorbed. The most successful examples of acclimatization have occurred where there has been a complete absence of intercrossing, as among the Jews in the Reunion isles and the Boers in South Africa. Dr Sambon asserts that in unhealthful colonies halfbreeds maintain their health no better than pure whites. He says that a cross between races is often apt to be a weakling, sharing the pathological predispositions of each of its parent stocks, while enjoying but imperfectly their several immunities. As yet nothing positive is known as to the mechanism of immunity and the possibility of its transmission by heredity. A great deal has been written about racial immunity, and that of colored races from malaria was once considered indisputable. More recent observations, however, have proved that differences are usually small and mostly unfavorable to the natives. It is commonly observed in the provinces of the Philippine islands that the natives have "calentura" as severely as American soldiers and with considerable mortality.[1] Much of the immunity of natives is only apparent, because we must not forget that those we meet are the survivors. The immunity of the native is not a natural (racial) but an acquired immunity, and the colonizer can acquire it just as well.

It must be remembered that in considering the subject of acclimatization a number of confusing factors should be eliminated. As Ripley says,[2] the neglect to eliminate these factors vitiates much of the testimony of observers in the field. In the first place, a change of residence in itself always tends to upset the regular habits of the soldier or the colonist. A temperate youth

[1] *Report of the Surgeon-General of the Army*, 1901, p. 134.
[2] *The Races of Europe*, 1899, p. 561.

in England becomes a heavy drinker in the barracks of India. The deadliness of hepatitis among English soldiers in India is probably due more to the consumption of alcoholic drinks than to the influence of the climate.[1] Hand in hand with alcoholism is usually to be found sexual immorality. An engineer in Algeria testifies that a Sunday will put more men in the hospital than three days in the hot sun. In dealing with the crossing of races and the effects of climate upon fecundity, the elimination of this factor is especially important. The influence of national habits in the choice of food is a third element to be taken into consideration. In this regard the Teutonic nations are specially handicapped in competition with Mediterranean peoples. The English and the Germans insist on their usual allowance of meat, where the Spaniards or Italians are content with cereals or lighter food. The Chinese are especially favored in accommodating themselves to a new tropical climate by reason of their simple diet of rice. The effect of the daily life and profession on the physiological processes is another correction to be applied. An indolent life always and everywhere tends to superinduce a multitude of disorders. An important hygienic precaution to be observed in the tropics is gentle and regular exercise, being careful to avoid over-exertion. Statistics for the Jewish race, confining all its activities to shops in the towns, must be corrected for this circumstance, therefore, before they are compared with statistics for the Germans who, as colonists, take up the ever-deadly cultivation of the soil. Ripley thinks the Boers who thrive as herders would undoubtedly suffer were they to stir up the soil as husbandmen. Wherever slavery exists it always produces a high death-rate and this vitiates the comparison between statistics of the whites and the negro.

Bordier emphasizes the importance of time in the phenomenon of acclimatization.[2] When wheat was taken for the first time from Europe to Sierra Leone, the first year it produced only the

[1] Davidson, *Geographical Pathology*, 1892, vol. I, p. 455.
[2] Bordier, *La Colonisation*, 1884, p. 37 ff.

plant and a few grains; the second year from the small number of grains sown very few germinated, but those that did produced stalks more fertile than those of the first year. From year to year the number of good grains increased, but many years were necessary to bring about the production of wheat identical with that which was brought from Europe. When geese were first taken to Bogotá they laid but few eggs, and the greater part of these were not fertile — even those that were fertile produced weaklings. The year following, the number of eggs, the proportion of fertile eggs, and the number of young ones that were successfully raised, increased. From year to year conditions improved, and at the end of twenty years the goose could reproduce on the plateau of Santa Fé de Bogotá almost as well as in Europe. If it were a question of the acclimatization of man, then years must be changed to generations. Twenty generations at twenty-five years each would make a total of five hundred years, and those who, at the end of fifty years, might despair of acclimatization would, undoubtedly, draw a too hasty judgment. No doubt the requisite number of generations in the case of man, owing to his greater powers of adaptation, would be considerably less than the corresponding years in the other case; but this, again, would be somewhat counteracted by the fact that man has a smaller number of offspring.

It is difficult to draw any definite and well-defined conclusion as to acclimatization in the tropics. Ripley attempts to summarize opinions and to balance authorities, but with little success, for he confuses the terms acclimatization and colonization. The former may be possible, while the latter, for economic and other reasons may be, if not impossible, at least wholly inexpedient. "On the whole," as Mr Wallace says,[1] "we seem justified in concluding that under favorable conditions and with proper adaptation of means to end in view, man may become acclimatized with at least as much certainty and rapidity (counting generations rather than years) as any of the lower animals."

[1] *Encyclopædia Britannica*, 9th ed. vol. I, p. 90.

Many authorities agree that Teutonic peoples, as compared with other races, are exceedingly inelastic in power of adaptation to tropical climates, but it is to be doubted if this difference is due to ethnic peculiarities so much as to differences in national habits. Wallace makes the statement that the English, who cannot give up animal food and spirituous liquors, are less able to sustain the heat of the tropics than the more sober Spaniards and Portuguese. This, however, does not make it necessary to answer the question in the negative, and assert that the white man cannot be acclimatized in the tropics. It shows only that in certain cases Europeans have failed to meet the conditions either through ignorance or through imprudence, and that acclimatization is in most cases necessary, not that it cannot take place.

Dr Sambon recognizes the difficulties attending acclimatization, but he thinks that it is in the power of modern science to remove an important section of these difficulties. He recognizes, as does every one else, that the two important obstacles to tropical acclimatization are heat and disease, but he differs from almost every one else in accentuating the fact that these two, as regards their direct action on man, are independent of each other. His predecessors looked rather upon the tropical heat as the cause of tropical disease, but Dr Sambon draws a clear and definite distinction between these two different factors. Disease causes deterioration and tends to exterminate; it must be met by a hygiene directed against the disease germs, and is not to any great extent to be counteracted by adaptation. Heat undoubtedly has a direct influence on our well-being, especially if combined with moisture, but there are two efficient means of protection against meteorological agencies. One is that wonderful process of organic adaptation which can change into hair the wool of European sheep imported to the West Indies; the other is advancing civilization, which tends to make man more and more independent of his environment. Even with our present imperfect knowledge, a colony planted upon the isthmus of Darien

would not be annihilated by the climate, as was the Scotch colony placed there in 1698. The science of reducing the temperature of rooms and buildings is still in its infancy; yet a government arsenal already exists in Marseilles — that hottest of European cities—where the temperature is so reduced by artificial means that artisans can work there with comfort during the hottest months.[1] The reduction in the cost of artificial ice makes possible a more general use of ice in warm climates, and much has been predicted of the effectiveness of the utilization of liquid air for cooling purposes. Many of the simplest mechanical inventions of recent years have contributed enormously to lighten the labor of the agriculturist and the artisan. The demand made upon the laborer today is for the intelligent direction of his implements rather than the use of mere physical strength.

The sanitation of the past, although it has accomplished a great reduction in mortality, has hardly been more than a blind application of measures which had proved useful against diseases in temperate climates. To act efficiently in the prevention of diseases, definite knowledge must be had of the parasites which cause them; their areas of distribution must be known, their various breeding grounds, the conditions favorable to their development, and the means by which they are conveyed to man. A great deal has been recently accomplished in tropical pathology by such men as Pasteur, Koch, Laveran, Hansen, Manson, Kitasato, Bruce, Sanarelli; but a great deal more remains to be done. The establishment of a School of Tropical Medicine in London in 1899 marked an important step in the right direction.

It is true that artificial adaptation to new climatic conditions is not real acclimatization, but it aids materially in bringing about that result. Time is necessary in order that the organic changes may take place through which true acclimatization is attained. Life and health must be preserved until this organic process is complete. The task for the future is to study means and

[1] Beale, in *The Forum*, July, 1899.

conditions which may lead to a complete victory over the tropical microbes, the real enemies to be conquered. Already more than ten million white men and their descendants are settled within the tropics, laying the foundations of new and perhaps greater civilizations. It seems hardly reasonable to dispute any longer the possibility of tropical acclimatization.

NOTES ON THE KEKCHÍ LANGUAGE

By ROBERT BURKITT

I. THE ALPHABET

The Kekchí vowels are the same as in Spanish; they are distinctly uttered, whether accented or not.

b at the end of words is pronounced surd; e. g., *rib*, 'himself,' sounds much like the English 'reap,' ending in *p*. *b* never resembles *v*, as it may in Spanish.

h aspirates the vowel following, as in English.

In terminating a vowel sound Kekchí sometimes applies a catch produced by closing the vocal cords. This catch should rightly be represented by a letter — a silent consonant written after the vowel. Failing a suitable letter I write a dieresis over the vowel: *lë*, 'there'; *sï*, 'firewood'; *hä*, 'water'; *käib*, 'two.' The vowel itself is in no way altered; it may be indefinitely prolonged, as in crying '*Haa....a*,' 'Waa....ter,' but the end is sudden.

The catch is a mark of certain inflections; it also distinguishes some words from others, as *nä*, 'mother,' from *na*, 'perhaps'; *pö*, 'rot,' from *po*, 'moon.' In tracing the kinship of words it has the perpetuity of a consonant: *kë*, 'grind,' is allied to *kä*, 'grinding-stone,' 'molar tooth.' The vowel may vary, but the catch remains. The catch, when possible, ends its own syllable: *kë-leb*, 'mill'; *kä-bej*, 'two days hence.' Otherwise it is obscured.

j is pronounced as in Spanish: the guttural *ch* as in the Scotch *loch*.

g as in Spanish *agua*, English *go*.

k as in English.

q, a velar *k*: *gwanq át*, 'be thou present,' is distinct from *gwank at*, 'thou art present.'

! is employed to express the fortis of *k* (somewhat as in English *click*), *p*, *q*, *r* (as in Spanish *burro*), and *t*. The character determines the difference between such words as *kam*, 'die,' *k!am*, 'take'; *pan*, 'toucan,' *p!an*, 'drug'; *qe*, 'ours,' *q!e*, 'time'; *jit*, 'accuse,' *jit!*, 'tighten'; *paq*, 'drown,' *paq!*, 'splash.'

n before a palatal becomes nazalized as in English *bank*, Spanish *zanja:* Kekchí *k!anjel*, 'work'; *kenq!*, 'bean.' Before *b* or *p*, *n* is often changed to *m: lan*, 'wrap'; *lambal*, 'wrapper.'

w as in English.

x as *sh* in English; thus, *tx* is pronounced as *tch* in English *match.*

y as *y* in English *yet*, usually with a vowel on one side or the other. In Carchá it slips into something like *x;* but Cabán turns it more to the semivowel *y* (or *i*) of English *toy*, Spanish *rey*, etc.

II. EXAMPLES OF WRITTEN INDIAN

The following is a prayer to the Earth, before sowing. The translation is as literal as English grammar allows:

At loq! laj Tsul, loq! laj Taq!a, nak ul in q!et gwib rubel a gwoq, rubel a gwuq!, txi ru li loq! laj kutan loq! laj saqain, li n' ın t!sama gwï sailal xt!xol jun mul áq kä mul áq l' in gwa li gwuk!ä, txi ru l' a t!xot!xel a sululil.

At loq! laj Tsul-taq!a, xxënil xtonal li rutx-i-t!xot!x, n' in t!sama ma jun ta-xaq l' a gwalq! txi t!xeoq re jun mul áq l' in gwa li gwuk!ä txi ru l' a t!xot!xel l' a sululel.

At l' in nä l' in yugwä, n' in t!sama gwï txik út tx' a gwu, naq tx' a gwosöbtesi tá li gwawim in gwa gwuk!ä; naq s' a gwoq s' a gwuq! ta txalq sailal-t!xol li rilbal in kutan.

Thou holy Hill, holy Valley, I come and bow myself beneath thy feet, beneath thy hands, in eye of the holy day and holy light, in the which I beg health for one or two plants of my food and drink, on the face of thy earth and mud.

Thou holy 'Hill-valley,' root and trunk of the world, I beg that none of thy creatures may touch a single plant of my food and drink on the face of thy earth and mud.

Thou, my mother my father, I beg furthermore of thee, that thou mayest bless what I sow for my food and drink; as from thy feet and hands shall come health for seeing out my days.

Notes

loq!, 'holy': costly, dear, worthy, goodly, highly-esteemed, holy. The root is the same in the word *loq!*, 'buy.'

a t!xot!xel a sululil; the endings *-el* and *-il* imply 'thy *constituent* earth and mud.' So elsewhere.

Tsul-taq!a; this compound is also used as a common noun, in the sense of 'landscape,' the complex of hill and valley.

gwalq!, 'creatures'; properly 'cattle'; pigs, turkeys, etc., kept by man. The wild animals are represented as 'cattle' of the Tsul-taq!a.

At l' in nä l' in yugwä; a common address to any superior.

osöbtesi, 'bless'; the primary meaning is 'bring to completion'; like that of our verb 'perfect.'

s' a gwoq s' a gwuq!, 'from thy feet and hands'; an example of archaic circumlocution. In common language it would simply be *a gwik!in*, 'from thee.'

There is no set form for such prayers. The following is a longer variant, from another Indian:

At loq! laj Tsul-taq!a; gwank ín rubel a gwoq a gwuq!; xin txal sä l' a tsulul a taq!aal txi xt!samankil tx' a gwe tx' a gwu, ä aj ban li xnimal a gwankil, naq tx' a banu tá l' a gwusilal a putunil sä in been; tx' a banu gwe l' a k!ial, jö gwï l' a txabilal a kïal gwe. Tx' in a gwuxtana tá, tx' in a temq!a tá, rik!in li bar! gwan na yolá sä in t!xol.

Ma tá ra, ma tá t!xäaj tx' a gwek!a, rik!in li t' in banu sä a been.

Tx' a k!e tá jun áq in naaj, rik!in naq t' in tur!uba; rik!-in xyokbal xk!alenkil li loq! laj

Thou holy 'Hill-valley'; I am beneath thy feet and hands; I have betaken myself to thy heights and hollows to beg of thee, because of the greatness of thy condition, that thou mayest do thy favor and kindness upon me; perform for me thy might, also thy goodness and sweetness for me. Do thou be merciful to me and aid me, respecting whatever arises in my mind.

May no pain, no annoyance be felt by thee, from what I shall do upon thee.

Do thou give me a place, with a view to my laying it bare; with chopping and clearing the

k!itxë jö gwï li loq! laj pim ; ä aj ban re l' in ketbal txi rutx a t!xot!x äin.

Ta gwaj út xyobtesinkil rawbal, sä l' a t!xot!x a sululel, l' in gwa gwuk!ä. Txi elq txi txabil. Txi gwanq tá loq! laj alab, loq! laj agwimq. Ink!ä tá txi xmausila éb li xxulel éb l' a tsulul a taq!aal. Tx' in molk!a ta-gwï, txi ma ra, txi ma loq!, li gwagwimq, sä tá l' a k!abä.

Gwank ín út ; t' in q!et gwib tx' a gwu ; gwaë út l' in mayej, li gwut!süuj l' in pom, t' in xaqab sä xbeen l' a t!xot!xel a sululel ; retalil xsununkil li usilal tx' a banu gwe, aj ban naq a loq!il a yuamil.

Ma k!ä tá tx' in k!ul sä l' a muhebal a k!i-txëbal. T' in t!sama út tx' a gwu, txi antxal in t!xol, naq tx' a k!e tá li kawilal gwoq gwuq! ; jö gwï l' in musiq!. Xin a gwil tá, xin a kaya tá, sä l' in rail tiqob ; xa k!e tá xnimal in t!xol, t' in t!sama tx' a gwu, at in nä in yugwä.

worshipful forest and the worshipful bush ; to the end of my maintenance on the face of this earth.

And I desire the production and sowing, in thy earth and mud, of my food and drink. Let it turn out good. May there be goodly buds, goodly plants. May they not be injured by the animals of thy heights and hollows. And may I gather, without pain or cost, my crop, in thy name.

And here I am ; I bow myself before thee ; and lo, here my offering, my candle, my incense, that I set up and leave upon thy earth and mud ; its fragrance a sign of the favor thou shalt do me, by reason of thy virtue and life.

May nothing befall me in thy shady places and forest places. And I beg of thee, with all my heart, that thou mayest give me vigor of foot and hand ; also my breath. Mightest thou see me, mightest thou regard me, in my sore sweat ; mightest thou give me stoutness of heart, I beg of thee, thou my mother, my father.

Notes

txi xt!samankil tx' a gwe tx' a gwu, 'to beg of thee' ; literally, 'to beg to thy mouth to thy face.' Ordinary speech would omit *tx' a gwe*.

a gwusilal, 'thy favor,' or 'goodness.' *us* is good, to some end, or toward somebody ; *txabil*, good intrinsically.

k!ial, 'might,' or 'grandeur.' *k!ial* is the "appertaining" form of *k!i*, grown, great, enlarged, 'heaps,' etc. Appertaining forms are frequently translatable by an English abstract ; as here, 'might.'

yola, 'arises'; or 'starts into existence,' 'is born.' *yola*, middle voice of *yoob*, 'set going,' etc.; from the root *yo*.

rik!in, 'respecting'; sometimes, 'with a view to'; generally, 'with' or 'at.' The fundamental sense of */ik!in* is best rendered by the French *chez*.

in ketbal, 'my maintenance': *ket*, 'strike'; idiomatically, 'maintain.'

rutx, 'face of.' */utx*, obsolescent form of */u*.

a(g)wimq, 'plants,' 'crops,' that which is planted. From the root *aw*, sow, plant.

xulel, 'animals of'; the "appertaining" form implies 'animal denizens of,' 'fauna.'

The following are the words of a curse:

Sä xk!abä l' aj oxlaju xukub, oxlaju tsul-taq!a, jö gwï li K!axtok!:

Txi xjunil éb li xul gwank éb xmay; k!antï, ik!xux, txakbolay, hom, kaqgwal, k!ambolay, rax-k!aj, q!an-ixiij; multajenaq tá, tx' eb xmolob rib txi xjunil li xmay éb. Aq li k!opopö, kaq-tuhuy, teken, txi xjunil xtepalil éb li sank; tx' eb xmoloban tá rib, txi xjunil l' aj may, txi xbeen a t!seqbetal gwinq aj —— ——; sä tá li xbeenik; li xgwa ruk!ä; txi xotk!oq tá; sä út xgwar!inik xk!amë tá ban l' Aj-tsa:

T' in tiw a t!xot!x äin. Txi yalöq tá li t' in banu sä xbeen; txi kehöq txi osöq sä xbeen; at!samirq tá txi xjunil k!ä gwank re; ä tá li K!axtok! txi iloq re. Kaaj ään t' in ye. Txi txupq txi osöq li xyuam.

In the name of him of thirteen horns, of thirteen hills and valleys, and of the Devil:

All the animals that have poison; snakes, (as) *ik!xux*, *txakbolay hom*, *kaqgwal*, *k!ambolay*, *raxk!aj*, *q!an-ixiij*; be they assembled, let all their poisons collect themselves. Also the toad, *kaq-tuhuy*, *teken*, the whole category of ants; may they collect themselves, all that have poison, upon that hateful man —— ——; be it in his walks; in his food and drink; may he be choked; and in his slumbers might he be taken by the enemy:

(For that) I bite this earth. What I am doing upon him may it come true; be it past and finished upon him; may everything that is his turn salt; may the Devil see to it. Only that shall I say. Let his life be quenched and ended.

Notes

ik!xux....q!an-ixiij; certain snakes, for which I have no English names.

kaq-tuhuy, teken; certain ants, for which I have no English names.

tepalil, 'category,' or 'inclusion,' from *tëp,* 'field,' 'precinct,' 'area.' *Txi xjunil xtepalil* is just the translation of Milton's 'total kind of':

> ". . . as when the total kind
> Of birds, in orderly array on wing," etc.
> (*Parad. Lost,* Bk. VI.)

t!seqbetal, 'hateful,' or 'despicable'; ultimately from *t!seq,* 'cast away,' 'pitch out.' A place where filth and refuse were thrown would be a *t!seqbetal.*

aj —— ——; here the victim's name is to be mentioned.

xotk!oq, 'be choked'; by something in the throat, not round the neck.

xk!amë tá, 'might he be taken.' The perfect (*x*), with *tá,* is equivalent to the Spanish "imperfect subjunctive"; '¡ Ojalá que *fuera* cojido!'

l' Aj-tsa, 'the Enemy'; or, loosely, 'the Devil.'

T' in tiw; here the speaker gets down and bites the ground.

yalöq, 'come true,' or 'be realized'; from *yāl,* 'true,' 'real.'

li t' in banu, 'what I am doing'; not these imprecations only, but also the accompanying magic; as going three times round the victim's house; burying a candle head-down in the direction of the door; burying images of beeswax, stuck full of thorns; etc.

kehöq, 'be past,' literally 'grow cold,' i. e., be utterly over and done. *kēhö,* Carchá for *kēö,* with intrusive *h. kē,* cold.

at!samirq, 'turn salt,'—formed like mem*ir,* 'turn dumb'; yaj*er,* 'fall sick'; etc. The inceptive ending in *r* is less usual than that in *ö,* seen in *keö,* just above.

K!axtok!, 'Devil'; doubtless the name of some once dreaded deity. Curiously, as in other languages, there is a frequent avoidance of the full name; as in the common asseveration 'Na xnaw li *K!ax*,' 'The *Deuce* knows it' (i. e., it is positively true).

'Only that shall I say,' i. e., 'I shall say no more.'

The following is a sample of the quaint language of medicine talk. The doctor speaks to the sickness, or to the evil principle of it:

Gwalal t!xin li bolay, nim li bolay,	Son of mine is the small *bolay* and the great *bolay*,
gwank in k!i, gwank in may;	I have power, I have poison;
äin l' aj nä, äin l' aj gwä,	I am thy mother, I am thy father,
naq t' in txup xxamlel a gwe, xxamlel a gwu,	[one of authority] to quench thy fires, to extinguish thy fires,
naq t' in satx a k!i a may.	to annul thy power and thy poison.
Bar! xat sia, bar! xat yola?	Where wast thou begotten, where wast thou born?
Rubel li saq i palaw, rax i palaw.	Under the white sea, the blue sea.
Bar! pë xa taw kat!xin a k!i, kat!xin a may?	Where gottest thou thy little power, thy little poison?
Sä xjukub xbalam ke.	In the canoe of the demon of the cold.
Ain l'aj nä, äin l'aj gwä,	I am thy mother, I am thy father,
naq t' in tuqub a gwe, t' in tuqub a gwu,	to still thee, to quiet thee,
naq t' in txup xxamlel a gwe, xxamlel a gwu,	to quench the fire that is thine, the fire that is thine,
naq t' in satx a k!i a may.	to destroy thy power and thy poison.
Jun raxal tsul, jun raxal taq!a!	A green hill, a green valley [I invoke]!
Kat!xin xk!i l' a gwe, kat!xin xk!i l' a gwu,	a little of thy might, a little of thy power,
t' in töon txaq.	shall I borrow.
Oxlaju tx' ajgwal roq i hä!	Thirteen potent water courses! [I invoke them]

xtxupbal xxamlel a gwe,	to quench the fires of thee,
xtxupbal xxamlel a gwu,	to quench the fires of thine,
sä loq! laj kutan, sä loq! laj saqink,	in the holy day, in the holy time-of-light,
naq t' in tseq a k!i a may.	that I cast out thy power and thy poison.
Oxlaju tsul, oxlaju taq!a !	Thirteen hills, thirteen valleys !
Ar!an xtxal xmay a gwe, xmay a gwu,	Thence cometh thy poison, thy poison,
txi ru jun tx' ajgwal palaw ;	over a mighty sea ;
ta gwap a gwe, ta gwap a gwu,	I blow in thy mouth, I blow in thy face,
txi oxlaju tsul, txi oxlaju taq!a,	with thirteen hills, with thirteen valleys,
tx' ajgwal kik!, tx' ajgwal q!an-hä,	with potent blood, with potent 'lymph,'
t' in txup xxamlel a gwe, xxamlel a gwu,	I extinguish thy fires,
t' in satx a k!i a may.	I annihilate thy power and thy poison.

Notes

'*Son of mine*,' etc. The doctor gives an alarming account of himself; the most deadly snakes are his children; he has formidable attributes, and warns the sickness that he is more than a match for it.

t!xin li bolay, nim li bolay ; modern speech would say 't!xin *a* bolay, nim *la* bolay.' *T!xin* and *nim* are among the few common adjectives which retain the primitive "predicate-subject" form of words, even when not really predicates, but attributes; most words used attributively have an "attributive inflexion," the débris of the original article or similar word (*li, i, la, a*, etc.); but with *t!xin* and *nim* the form of the article persists, though its meaning is gone. Kekchí shows plainly, in various ways, that the "attributive" relation was not an independent device, but was evolved from the "predicate" relation.

bolay. In the modern language *bolay* is not found as a defi-

nite word, but only in composition, in the names of half a dozen snakes, of which the largest and most dreaded is the *ik!-bolay*, Sp. *vibora*.

gwank, in Cobán, would be '*gwan*'; '*there is* my power,' etc.; French *il-y-a*.

may, 'poison,' especially the venom of snakes, scorpions, ants, etc.

äin, 'I'; identical in form with *äin*, 'this.' *Äin*, *äat*, etc., are "intensive" pronouns, not to be confounded with the usual emphatic pronouns *lain*, *laat*, etc. The former begin with the intensive particle *ä*; the latter with an obsolete form (*la*) of the article.

l' aj nä . . . l' aj gwä, 'thy mother, thy father'; i. e., I have authority over thee. Cajabón style, for *l' a nä*, *l' a yugwä*, of Cobán and Carchá.

xxamlel a gwe, *xxamlel a gwu*; literally, 'fire of thy mouth, fire of thy face.' In archaic language, 'face' and 'mouth' are taken to describe the person, and make a sort of double pronoun. As English has no two ways of saying 'thee,' etc., I attempt to render the Indian repetition by varying the English verb 'quench,' and 'extinguish,' and so elsewhere.

xamlel, 'fire *proper to*' (thee) — "appertaining" form of *xaml*, 'fire.'

satx, 'annul,' or 'destroy,' 'ruin,' 'annihilate,' 'cancel.' The prime meaning of *satx* is 'lose'; or 'be lost,' 'perish'; '*naq t' in* satx,' literally '*when I shall* annul.'

'*Where wast thou begotten*,' etc. The sickness is further overawed. Its antecedents are shown to be no mystery to the doctor; he disparages its powers and repeats his threats.

Bar! xat sia; more literally 'where *hast* thou *been* begotten.' Kekchí, like French, is partial to the perfect, frequently using it where English prefers the aorist, 'wast.' So elsewhere. The form *sia* is middle, as well as active. The active substantive

(answering to our "infinitive") is *siank;* regular. It should be said that *sia*, in precise language, would refer to a female progenitor, and might be rendered 'conceived.'

palaw, 'sea'; or any very large lake. The word curiously resembles the Latin *palus*. 'White sea, blue sea'; not two seas, but two descriptions of it. So Homer speaks of the sea as hoary and also wine-colored.

pë. This untranslatable particle gives a very conversational air to the question.

balam, 'demon,' 'presiding genius;' Latin *numen*. The principle of the sickness comes from a magic sea in a magical canoe.

t' in tuqub a gwe, t' in tuqub a gwu; in ordinary language it would be *t' at in tuqub*, 'I shall quiet thee.' See note to *xxamlel a gwe*, etc., p. 449.

A green hill, a green valley, etc. The doctor calls on the deities of the hills and streams; turning again to the sickness, in the last four lines.

Oxlaju. Thirteen is a favorite number in medicine-talk.

ajgwal, 'potent,' or 'lordly.' The Almighty is also usually described as '*Nim ajgwal*'; but otherwise the word is not current.

loq!, 'holy.' These medical rites are sacred in a way, and give something of that character to the time of their performance. (See note, p. 443.)

Thirteen hills, thirteen valleys, etc. Again the doctor calls upon the name of the *Tsul-taq!a* (represented as a godhead of thirteen), being the prime source of all mysterious powers; from thence, too, the sickness has come, by way of the sea, already mentioned. The thirteen hills enter into the doctor, and with their magical fluids of life he breathes on the sickness and annihilates it.

txi ru, 'over,' or 'along the face of.'

gwap, apocopated from gwap*u*, like ban for ban*u* ('do'); *apu*, 'blow.'

ta gwap a gwe, ta gwap a gwu; here the doctor actually blows on the patient's body. Sometimes, as here, the literal translation 'mouth' and 'face' may be tolerated, though the expression means simply 'I blow on *thee*'; in modern phrase, t' *at* gwapu.

kik! . . . *q!an-hä*, 'blood' . . . 'lymph'; *q!an-hä*, literally, 'yellow-water.' These are the two bodily fluids recognized in medicine-talk.

Again, the doctor sometimes feels the patient's pulse, and talks to the vein:

Ratinankil a gwe, ratinankil a gwu,

gwalal t!xin la it!x, nim la it!x,
k!ä xa k!ul, k!ä xa töon?

K!ä xat sumenk?
Ye! ajgwal kik!, ajgwal q!an-hä!

Ye txaq!
B' a muq a gwib, b' a balab a gwib,
naq na gwatina a gwe, na gwatina a gwu,
sä loq! laj kutan, sä loq! laj saqink,
naq t' in satx a k!i a may.

Ink!ä xa naw bar! xin txal,

xin yokbak txaq:
Oxlaju tsul, oxlaju taq!a!

naq na 'n txap a gwe, na 'n txap a gwu,
etc.

Speaking unto thee, speaking unto thee,
lesser vein, or greater vein, my son,
what has befallen thee, what (harm) hast thou borrowed?
How answerest thou?
Tell it! mighty blood, mighty lymph!
Out with it!
Hide not thyself, seek no ambush,
when I speak to thee, when I speak to thy face,
in the holy day, in the holy time-of-light,
that I destroy thy power and thy poison.

Thou knowest not whence I am come,
(nor where) I have passed:
Thirteen hills, thirteen valleys! [I invoke]
as I seize thee, as I seize thee,
etc.

Selections like the foregoing may please the antiquary; and no pains have been spared to make the text right. But such

pieces are not samples of the language any more than nursery rhymes, perhaps, would be samples of current English.

For the better observation of Kekchí in continued discourse, the writer caused translations to be made from Spanish books. The following paragraphs are part of a treatise on tobacco-planting; translated by the most competent of Indians, Tiburcio Caal, of Cobán. His language is not a slavish imitation of the Spanish, and not so wordy. But attention to the Indian will show that nothing is lost.

Falbanaaj.

Us tá na k!i na yü li may txi ru txi xjunil éb li t!xot!x, kaj án li t!saqal t!saqal xt!xot!xel ä li rax t!xot!x, poq t!xot!x, jö na gwan gwï kat!xin áq gwakab t!xot!x.

Li awk na ux sä txaqi t!xot!x, t!xolt!xo naq jun gwa káj na t!xotman; ä út li na awman sä rax t!xot!x, näno naq kä gwa, ox gwa, na t!xotë, gwi na awman sä li t!saqal xkutankil.

Li naajej bar! ta uxq gwï li awk, junxil áj na txamöbr!esiman ruq!inkil; ut naq na xk!e rib xpoqlenkil, na etxaniman li q!axal xninqal k!utul rib q!een jö li sik!bil ru may na el sä *Tabasco*, q!axom ru li numtajenaq txaq!al pay na el sä xyi-hä-t!xot!x *Cuba*.

Li awk na k!eman txi tsol; gwan xkäb *vara* gwi út öob k!utub be na kana; ut na k!eman oxib k!utub xyank li junq ton, bar! xq!em t!xot!x; bar! ink!ä, käib k!utub t!saqal.

Trasplante.

Aunque el tabaco crece en todos los terrenos, sin embargo las tierras mas apropiadas son las húmedas, suaves, y que contengan al propio tiempo una pequeña cantidad de barro.

Las siembras que se hacen en los terrenos secos, por lo regular no producen mas que un solo corte; mientras que en lugares húmedos, por lo común, se logran dos ó tres; siempre que se practiquen las siembras en sus fechas apropiadas.

El terreno que se va á sembrar debe removerse profundamente de antemano; y cuando se le puede majalear, se obtendrá una hoja tan lucida y desarrollada como la del distinguido tabaco de Tabasco, competidor de las mejores calidades de la isla de Cuba.

La siembra se practica por surcos, de vara y media, ó vara y cuarta de calle, por tres cuartas de espacio entre mata y mata, en los terrenos muy feraces, y de media vara en los menos feraces.

Majï áq tiklaaq li awk, na hopman li xjulel txi kok! q!esnal txë, gwan rox min xtxamal, na k!eman txi ru li rinrokil k!am k!utul re li xtsolam.

Na ru xtikibankil li awk naq na gulak lajeeb gwi käblaju xxaq li muun, jö xjalamutx jun txi nim la tumin *peso* ru. Äin na ru xbanunkil jö naq yo li häb ; gwi út ink!ä yo, na ru xkanajik re roibeninkil naq ta kubeeq moqon.

Gwi na kana txi but!bil xton li agwimq ölaju kutan junxil áj txi ru xraqik li häb, na tikla txi k!iik txi xhelbal rib sa xgwankil li xtxu-ke na kube txi ru li q!oq!yoin.

Nabal xyalal sä li awk txi k!emanq xxë li agwimq jun tik na ilok taq!a ; re bï út äan, txi muqmanq raj ton toj txi gulaq jun pak!al li xbeen käib txi xaq ; toj jö náq txi kelomanq kat!xin áq taqeq, txi nat!manq út txi us rikin uq!ej.

Kä-agwink.

Kahib öob áq kutan xnumik li awk na il man jar! ton ná x kam, re xkä-agwinkil txi tsol raj tsol.

Us tá txan ru na t!xolaniman li muun, ink!ä na moq txi jun-taq-et ; tento xbanunkil, jö sä li awk, jö sä li kä-agwib, gwi jun ka-xukut, gwi út jun *manzana*, txi awmanq muun jun áj xtxamal.

Antes de comenzar la siembra, se practican con estaca los agujeros, dándoles dos y media pulgada de profundidad, sobre un cordel que designe las lineas de los surcos.

La siembra se puede comenzar desde que el almacigo tiene de diez á doce hojas, cuyo vuelo contiene entonces el diámetro de la moneda de un peso fuerte ; procurando hacer esta operación en los dias de lluvias, y suspendiéndola en los que no llueva, para proseguirla al volver las aguas.

En quedando calzada la siembra quince dias antes que se retiren las lluvias la planta continuá su desarrollo á merced del sereno de las noches.

Es muy interesante en la siembra el que la raíz quede perfectamente recta hacia abajo ; para lo cual, se enterrará toda mata un poco mas de las dos primeras hojas, dándole un pequeño jalón en seguidas hacia arriba, y amacizándola fuertemente con las manos.

Resiembra.

Después de los cuatro ó cinco dias posteriores á la siembra, se pueden reconocer ya todas las matas que hayan muerto, para practicar la resiembra surco por surco.

Como, á pesar de cualquier esmero, los almacigos nacen disparejos, deberá procurarse, tanto en la siembra como en la resiembra, que las cuadras, ó manzanas, se practiquen con almacigo de igual tamaño.

Aq!ink.

Txalen sä li awk tixto sä li sik!ok, na ru raq!inkil li agwimq, jö txi sâ, jö txi xk!atq, re naq b' e' tam li motsö; junes li may txi k!amoq xgwankil li t!xot!x, jö gwï txi xmusiq!a xgwankil li iq!.

Gwan t!xot!x bar! kä gwa káj na ux gwï li aq!ink; ut li t!saqal t!xolt!xo txi xtepal na raj oxib raq!inal, ramro kahib út gwï txik sä jun tenel.

But!baton.

Txi rix li xbeen aq!in, sä xk!ebal li xkä-numik, na but!man xton li agwimq, ä yal gwi txi xjunqal, gwi út txi tsol.

Kapunink.

Naq na gulak käblaju gwi kalaju xtxabil xaq txi xjunil, sä jumpat na ru xkapuninkil.

Gwi gwan xtonal q!axal lubk!am-k!i éb, kaj gwï rusk!ul gwaqxaqib xxaq na ru xkanabankil; ut li t!saqal yal-k!am-k!i lajeeb áj na kanabaman; käblaju re li numtajenaq k!am-k!i.

Gwi na kanabaman bay-us xxaq li junq ton, jun-taq-et aj gwï na xik elq sä li xp!isbal, ä ban ink!ä ninq, txi mako txabil.

Isink motsö.

Txi xjar!-payil ru li pepem gwan, ma jun áq us re li may, ban äan nak eb molbek nak eb xk!ula li xt!seqom txi ru éb li xxaq;

Limpias (i. e., Hoeing, etc.).

Desde la siembra hasta la cosecha, debe mantenerse limpia la sementera y sus inmediaciones; para evitar la abundancia del gusano; y que solamente el tabaco aproveche los elementos de la tierra y de la atmósfera.

En algunos terrenos bastan solamente dos limpias; más en la jeneralidad se requieren tres 'raspados,' y en algunos pocos, cuatro.

Calza (Earthing up).

Después de la primera limpia, y al practicarse la segunda, debe calzarse la plantación, ya sea á cada mata de por sí, ó bién llevandola por surcos.

Descogollado (Topping).

Teniendo ya todas las matas de doce á catorce hojas buenas, debe entonces practicarse el descogollado.

A las matas endebles se les dejan ocho hojas solamente; á las medianas diez; y á las mas robustas doce.

Cuando se deja á las matas mayor numero de hojas, producen el mismo resultado final de peso, pero se tienen hojas de poco desarrollo y lucimiento.

Desgusanado.

Toda clase de mariposa es nociva al tabaco, por cuanto que ella deposita en sus hojas los óvulos de las larvas, que naciendo con

jumpat nak eb moq, nak eb ilok kutan, nak eb tsakan txi ru xxaq li may.

Txan tá ru yo xtxapbal li pepem rajlal kutan, gwan gwï txik k!i la t!xol re q!oq!yoin ; jök án naq ink!ä na ru xkanajik jun kutan áq rilbal xmotsöil, jö rajlal tsol, jö rajlal ton.

Naq na tam li q!oq!yoinil pepem, jö gwï li pompor!ï sä li agwimq, us xk!ebal nabal aq xam txi ru q!oq!yin, txi xjunil sä li awbil, re naq ar!an tx' ul eb kamq txi xtepal éb li pepem.

Li raxjoin rix motsö, '*primavera*' xk!abä, äan li q!axal na xk!e rib xtxapbal, ban jun elik gwan txi xkutankil, jö txi xsal, jö txi ru li may.

Ut li xkäb motsö, gwan jun xukub txi xpekem, mako num rax tá rix, '*cogollero*' xk!abä, jun elik na tawman sä xt!sunt!sunuuj li may, bar! na xkabla na xhop gwï li rotxotx.

Eb li yal saqtxujin rix motsö, yobtesimbil xban éb li pompor!ïl pepem, ink!ä nabal nak eb xk!ut rib txi kutan jö tá txi ru q!oq!yin, ban nak eb xmuq rib sä t!xot!x naq na el li saq!e.

Jun txi gwinq na ru na molk!ank re li pepem jö gwï li motsö, sä xkäpak!al tsol, jun tsol txi xnim uq!, jö gwï jun tsol txi xt!se.

etc.

mucha violencia se alimentan y viven á espensas de las hojas del tabaco.

Mas como á pesar de todo el cuidado que puede tenerse por perseguir las mariposas, las hay nocturnas y de muchas variedades ; es indispensable la operación del desgusanado diario, surco por surco y mata por mata.

Cuando la mariposa nocturna abunda, es conveniente distribuir bastantes lumbres por las noches en la plantación, en las cuales vienen á morir cantidades de mariposas.

El gusano llamado '*primavera*,' de un color verde esmeralda, es mas fácil de cojer ; pues siempre se encuentra visible por cualquier parte de la planta.

El '*cogollero*,' de un color verde mas claro, con un cuerno en la frente, se encuentra siempre en el propio cogollo de la mata, donde labra su agujero de habitación.

Los gusanos de color gris, procedentes de las mariposas nocturnas, muy pocas veces se les encuentra de dia, como por la noche, y se esconden en la tierra á la salida del sol.

Una sola persona puede llevar la collecta de mariposas, y el desgusanado, en dos surcos á la vez, por derecha é izquierda.

etc.

The vocabulary of Kekchí is abundant. The expression is clear, rapid, and versatile. For dealing with matters of fact, the

language of the Indians suffers little by European comparison; it is much their most respectable monument.

III. TWO LOST NUMERALS

The words for counting from one to twenty are as follows:

1, *jun;* 2, *käib* (originally, *käbib*); 3, *oxib;* 4. *kāib;* 5, *öob;* 6, *gwaqib;* 7, *gwuqub;* 8, *gwaqxaqib;* 9, *beleeb;* 10, *lajeeb;* 11, *junlaju;* 12, *käblaju;* 13, *oxlaju;* 14, *kālaju;* 15, *ölaju;* 16, *gwaqlaju;* 17, *gwuqlaju;* 18, *gwaqxaqlaju;* 19, *belelaju;* 20, *jun-may.*

The word *may* means tobacco, which is always made into parcels of twenty leaves. Hence the term *jun-may*, 'one score.'

Counting goes on by scores; but the name *may* is replaced by *k!āl: kä-k!āl*, second score (40); *ox-k!āl*, third score (60); *kā-k!āl*, fourth score (80); *ö-k!āl*, fifth score (100); *belelaju k!āl*, nineteenth score (380). For twentieth score the name is not *jun-may k!āl*, but *jun oq!ob*, 'one 400'; and successive periods of 400 give the series: *käib oq!ob*, 2 x 400; *oxib oq!ob*, 3 x 400; *belelaju oq!ob*, 19 x 400; *jun-may oq!ob*, 20 x 400 (8000); and so onward indefinitely in the modern language, the *oq!ob* begin the highest unit extant.

But higher units there once were; at least so it appears from a Kekchí manuscript found a few years ago by the present writer in the sequestered village of Cajabón.

The manuscript is a body of sermons, of the missionary sort, with stories from the Old Testament. It comprises seventy folio pages; but the beginning and end are missing, and the date is unknown. The author, whoever he was, preaches against idols of wood and stone, as if they were yet worshipped. The language represents the style of Cajabón, and shows many archaic forms and some words which are quite forgotten — in particular, two numerals, *txuy* and *kalab.*

Instead of saying *jun-may oq!ob*, as above, the manuscript says *jun txuy*, 'one 8000'; and the *txuy* remains the major unit

up to *belelaju txuy*, 19 x 8000. And arriving at 20 x 8000, the term shown is *jun kalab*, 'one 160,000.'

The scheme is obvious. European counting gives simple names to the early powers of ten, as the English 'ten,' 'hundred,' 'thousand,' and the Greek 'myriad' (the fourth power). And twenty being the base of the Indian scale, fresh names come in with fresh powers of 20: *k!āl* (or *may*), 20; *oq!ob*, 20 x 20; *txuy*, 20 x 20 x 20; *kalab*, 20 x 20 x 20 x 20.

The words *k!āl* and *oq!ob* have no etymology in the language; and neither has *txuy*. *Txuy* may have been *t!xuy* (with the violent *t!*, and the vowel long or short); *chui* is the spelling of the manuscript. The word which it spells *calab* is likewise indefinite; the *c* might mean *k* or *k!*, *q* or *q!*. But calling it *k* allows a very plausible etymology.

Connected with the words *al*, 'young,' *ala*, 'bring forth,' etc., there is a word *alab*, meaning 'birth, product of birth, litter, new growth,' etc.; as in saying X*kā alab* äin, 'This (is) her *fourth birth*.' It is easy to think that the numeral '*calab*' is *kālab*, by contraction for *kā alab*, 'fourth birth,' 'fourth product'—of 20, understood.

The arithmetical reader, not versed in these languages, would fancy, from what has been seen, that a notation like the Arabic might be adapted to Indian—writing 10 for *jun-may*, 20 for *kä-k!āl*, 30 for *ox-k!āl*, 100 for *jun-oq!ob*, and so on. The attempt fails, owing to the Indian description of intermediate numbers. To write '66' would answer to saying '3 score and 6'; but in Indian it is '6 of the fourth score.' The score mentioned is not the score behind, but that in which the remnant lies.

21 is called '1 of the second score' (*jun xkä k!al*); 39 is called '19 of the second score' (*belelaju xkä k!al*); 41 is called '1 of the third score' (*jun rox k!al*); 286 is called '6 of the fifteenth score' (*gwaqib rölaju k!al*), the fifteenth score (*ölaju k!al*) being complete at 300. And so on. The Indian way of

speaking tells where a number lies, but without representing it as a sum of parts, as we do.

The original notion of a number, in Kekchí, is not that of an aggregate, but of a point in the stages of a series. And in fact the simplest numerals of Kekchí are found in serial expressions, answering as near as may be to our '2nd,' '3rd,' '4th,' '5th,' etc.; as may be seen above. In the terms x*kä*, r*ox*, x*ka*, r*ö*, the numeral forms employed are not *kä(b)ib*, *oxib*, etc., but the primitive *kä(b)*, *ox*, *kā*, *ö*. For reasons of grammar they get a certain "possessive" prefix here; *r* before a vowel, *x* before a consonant.

Passing 400, a number is said further to lie in such and such an *oq!ob:* 401 is '1 of the second 400' (*jun xkäb oq!ob*); 420 is '1 score of the second 400' (*jun-may xkäb oq!ob*); 425 is '5 of the second score, of the second 400' (*öob xkä k!al, xkäb oq!ob*); 825 is '5 of the second score, of the third 400' (*öob xkä k!al, rox oq!ob*).

And the Cajabón manuscript continues the method with the *txuy* and *kalab*. The highest number it mentions is *kā txuy, rö kalab*, 'fourth 8000 of the fifth 160,000,' i. e., 672,000 — being the number of sheep taken by the Israelites after a battle (Numbers, xxxi, 32). The authorized version says 675,000. The writer of the manuscript had no care to be exact; here and elsewhere he takes an Indian round number, near enough to the mark. 675,000, exactly, would be *lajeeb k!al, xgwaqxaq oq!ob, rö txuy, rö kalab*, '10 score, of the eighth 400, of the fifth 8000, of the fifth 160,000.'

With the *kalab* the way is plain for nineteen steps, ending with *belelaju kalab*, 19 x 160,000, or 3,040,000. The next new name we should expect would come with the fifth power of 20, or 3,200,000 — if Indian arithmetic had reached it.

IV. INDIAN SURNAMES

The Kekchí have hereditary surnames, some with a meaning in the language and some without. The latter may have a mean-

ing in some other language. It is easy to think that if lists of Central American surnames could be compared they might furnish a very substantial index to the movements and mixtures of these tribal groups.

I go on to present a collection of the surnames of the people who now speak Kekchí. Surnames, like other words, accent the last vowel. Long vowels are marked.

First, the surnames which have the sound of Kekchí words, or roots, and may be taken to have the meaning of them:

Ak!, new.
Aktë, Span. 'lancetillo,' a thorny palm tree.
Āqam, Span. 'cotuza,' an animal like a rabbit, but with short ears.
Asij, a sort of cicada.
Ax, a tree, valuable for its hard red wood.
Ba, Span. 'taltuza,' a sort of mole.
Baq, bone.
Bat!s, monkey.—Span. 'mono.'
Gwuq, seven.
Hö, dung, filth, etc. (a word used in speaking to children; not among grown people).
Hol, root of *holho*, bulging, sticking out (as the eyes of a frog, etc.).
Hor!, root of *hor!ob*, etc., bore (a hole) through.
Ik, chile (peppers).
It!s, root of *it!sib*, crack (as the sun cracks wood)—*it!so*, etc.
Ixim, Indian corn in grain.
Jolom, head.
Juk, root of *juku*, drag along.
Jukub, canoe.
Kakaw, cacao.
K!antï, snake.
Kej, the large gray deer of the hot lands.
K!ib, the edible part of any sort of palm, the green shoot of it.
K!il, earthen pan (for baking tortillas), Span. 'comal.'
K!im, straw; thatch.
K!oj, mask (of wood, for the face used in various dances).
Kok, tortoise.
K!oy, chew; (2) chewing-gum.
Kuk, squirrel.
Kum, root of *kumub*, stub, cut short, break off short (an extremity). *kumku*, stubbed, etc. — (Not *k!um*, a squash.)
Kus, root of *kusku*, round, globose, (of persons) 'potato-headed.'
Luk, root of *luklu*, hanging double, hanging over (as a snake on a stick, or a tablecloth)—*luk-ub*, etc.
Maqs, pumice.
Max, Span. 'mico,' a species of monkey; (2) a weevil, in corn, etc.
May, poison; tobacco.
Mes, wipe, scrub.
Mö, Span. 'guacamaya,' a large particolored parrot.

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Ö, five.

Pan, Span. 'cucharón,' a sort of toucan.

Pap, a green bird of the hot land about the bigness of a pigeon.

Pek, stone.

Pix, knot; wart; tomato.

Pojok, 'substantive' form of *poj*, fling, fling away, fling down. —(Not *p!oj*, sew.)

Pōk, Span. 'miltomate,' a plant with much small fruit, used as a vegetable, like tomatoes.

Pom, roast; (2) any gum, etc., burnt as incense.

Pōp, mat, woven of straw.

Poq, name given to powdery magnesian limestone, or any similar looking deposit; (2) a tree, from which a bluish dye is had. —(Not *poq!*, disembowel.)

Q!an, yellow.

Q!een, herb, any edible or medicinal leaf, or berry.

Q!ol, bead, necklace; (2) sticky gum (exuding from trees); (3) reap (Indian corn).

Rax, green, blue (the name includes both colors).

Sakil, the seed of plants like melons, squashes, etc.

Sam, snot.

Seb, clay.—(Not *sēb*, light).

Sēl, sort of pumpkin, of which the shell is used as a vessel to hold tortillas.

Sï, firewood.

Sïs, Span. 'pisote,' a small animal, easily tamed as a pet.

Sot!s, bat (the animal).

Sub, a thorn tree, with leaves like the mimosa, but not sensitive.

Tok!, flint.

T!os, slap, pat (a child, a dog, etc.).

T!salam, prison.

T!sï, dog.

T!simäaj, Span. 'yerba de coche,' a grass.

Tsir!, strike (fire, from a flint, etc.).

T!sub, suck; kiss.

Tsuk!, stop at a stand, halt stock-still.

T!sul, plait.—(Not *tsūl*, hill.)

T!suy, root of *t!suyt!su*, dried up (as fruits drying up before maturity)—*t!suyub*, etc.—middle, *t!suya*.

Tun, a hollow cylindrical wooden instrument of music.

Tux, this is the Cobán form of *tuxm*, sprout, twig.

T!xalib, there is a tree of this name.

Txë, tree.—(Not *t!xe*, touch).

T!xēn, mosquito.

Txiaq, name of a place where the forage plant, *aq*, grows.

T!xo, mouse.

Txoy, finish.

T!xub, wasp.

Txun, lime.

Xal, gap or pass (between hills); fork (of a tree, of a road), etc.

Xaq, leaf; (2) root of *xaqab*, set upright, *xaqxo*, standing, etc.

Xë, root.

Xol, flute (musical instrument).

Xoy, there is a weed of this name.

Xuk, corner, angle.

Yāt, fly (insect).

Yat!s, squeeze.

Yoj, root of *yojle*, or *yojob*, etc., rattle, shake together.

Only nine surnames above are identified with mere roots. The number is small, for the reason that most Kekchí roots occur also as definite words. Of course, in the foregoing list, some of the surnames may really have nothing to do with the words they simulate, but the identity is more or less plausible.

We now come to the surnames which cannot so be identified. Some of them contain no suggestion of meaning; again, like many English surnames, they may often be broken into syllables, one or more of them susceptible of meaning. And some of them are like puns. Blind and stumbling as such suggestions may be, yet to let the reader judge, I have thought it worth while to notice all that I could gather:

Agwaleb.
Ak!al; k!al, cornfield.
Ak!alhä; hä, water.
Amaleb.
Ayü (not *ayu!* 'go!'); *yü*, grow, lengthen.
Balew, there is a hamlet of this name, but it has no meaning.
Bin.
Bö.
Bol (not *böl*, cylinder, etc.).
Botsok (not *bot!sok*, substantive form of *bot!s*, extract, pull out).
Büts.
Esem.
Gwalib; gwa, food, tortilla.—*/alib*, daughter-in-law; *gwalib*, my daughter-in-law.
Gwalibat; gwalib at, thou art my daughter-in-law.
Gwalna; gwal, my son; *na*, perhaps.
Gwegwe; gwe, my mouth.
Gwits.
Hub (not *jub*, fetch a blow at).
Huk (not *juk*; see last list).
Hun (not *jun*, one).
Ibaj, the names of some animals begin with *i*, as *imul*, rabbit; *iboy*, armadillo.
Ik!al; k!al, cornfield.
Ikö; ik, chile; *ö*, five; *kö*, sweetheart (if used by a man), daughter (if used by a woman).
Itx (not *it!x*, vein).
Itxitx.
Jalal; jal, change.
Jolomna; jolom, head; *na*, perhaps.
Kabnal; kab, sweet (-meat).
K!ajbom, this is also the name of the town which the Spanish, corruptly, call 'Cajabón.' *k!aj*, Indian-corn meal.
Kakinam.
K!ätun, see *Tun*, last list.
Käw (not *käw*, hard).
K!initx, cf. *itx*, above.
K!u.
Kugwä; gwä, father, sir.

Kuk!ul ; k!ul, receive; *kuk!um*, feather.
Mäas ; mä, 'mister'; */as*, elder brother of.
Mak!in.
Maxena ; Max, see last list.
Muk!u ; mu, shadow; *muk!*, root of *muk!mu*, drooping; etc.; */u*, face of.
Oxom ; ox, three.
Päaw ; aw, sow.
Pakyul ; yul, anoint, smear.
Panä ; pan, see last list; *nä*, mother. In compounds, *hä*, water, is often reduced to *ä ; nimä* for *nim-hä*.
Paqay (not *pākay*, a certain fruit).
P!ēp!.
Pöow ; pō, rot.
P!ulum.
Putul ; tul, plantain.
Q!äal ; al, young, boy.
Q!aq.
Sagwï ; gwï, where.
Sakba ; ba, see last list.
Sakul.
Saqi ; saq, white.
Saq!ij.
Saqrab ; /ab, hammock; *rab*, his hammock.
Taqaj (not *Taq!aj*, Mazatenango); *ta qaj*, we desire it.
Tēk.
Tenï ; te, open; *ten*, hammer.
Teyul, cf. *Pakyul* above.
Tiul.
T!ot!.
T!ox.
Tsib (not *t!sīb*, root of *t!sība*, write).
T!siboy ; boy, genital parts of the female.
Tsok! (not *tsok*, root of *tsokak*, be hungry).
Tsunhä ; tsun, root of *tsuntsu*, quiet, stealthy; *hä*, water.
T'ūt.
Tupil (not connected with *t!up*, break, snap).
txamam ; txa, ashes; *txam*, deep; */mam*, grandchild of.
Txaneb.
Txen (not the *T!xēn* of last list).
Txikin, begins like the name of a place, with the preposition *txi*.
Txoj.
T!xok (not *txoq!*, cloud).
T!xoköoj.
Txolom (not *t!xolom*, of *t!xol*, clear, make plain, etc.).
Txor, there is a word *txornak*, urinate with difficulty.
T!xuhun, or *t!xūn* (not *t!xun*, a certain fruit; nor *txun*, see last list).
Ukum ; kum, see last list.—(*uk* is not *uk!*, drink.)
Ul.
Xï.
Xo, an exclamation; *Xo!* means Silence!
Xux, might be identified with *xuxb*, whistle, by dropping the final *b*.
Yalibat, cf. *Gwalibat*, above.
Yaxkal ; yax, pincers (of crabs, etc.).

The sounds of all these surnames, and the possible meanings, in both lists, have been scrutinized by competent Indians. Each

list, as it happens, comprises 87 surnames, 174 in all. I believe my collection is nearly, if not quite, complete.

It may be added that most places in the Kekchí country have Kekchí names, frequently taken from some plant or animal about the place. But some principal town-names have no meaning:

K!ajbom, Cajabón (see *K!ajbom*, last list).
Kartxa, Carchá (*kar*, fish; *txa*, ashes).
Köban, Cobán (see *Ikö*, last list).
Lankin, Lanquín (*lan*, wrap).

Dr Stoll erroneously gives *Carchá* as meaning 'fish-ashes.' If the word meant anything in Kekchí, it would be the name of some fish, 'ash-fish.' But there is no such fish.

And there is no Kekchí meaning in the names of certain venerated mountains; though spoken of with the Kekchí prefixes *mä* (old man, 'mister'), *xäan* (old woman, 'mistress'):

Xäan itsam, northwest of Cajabón.
Mä kojaj, north of Carchá.
Mä siyab, west of Senahú.
Mä xukaneb, southeast of Cobán.

A few foreign towns are known by names which are neither Kekchí nor the names adopted by the Spanish: Poqom, *Chinautla;* Taq!aj, *Mazatenango;* Xelajü, *Quezaltenango.*

ANTHROPOLOGY AT PITTSBURG

By W J McGEE

The gathering of anthropologists at Pittsburg, June 28 to July 3, 1902, was of peculiar interest; for, in addition to the customary features of a well-attended meeting of the American Association for the Advancement of Science, a special organization of national character was formally founded under the title American Anthropological Association.

To workers in anthropology in this country the creation of the new society will be in no way surprising; for it is but the consummation of a movement extending over several years. After repeated stirrings, this movement took definite shape in 1896, when the recognized need was partially met and the stress relieved by a series of winter meetings of Section H (Anthropology) of the A. A. A. S. Two years later the pressure for organization was again renewed, but once more the needs of the workers were met in part by improved facilities for publication in form of the *American Anthropologist* (New Series). Despite these advances the feeling has remained strong among the leading anthropologists of the country that the dignity and importance of the science, and the number of workers engaged in its support, were such as to demand a national organization maintaining its own medium of publication; and this demand has been much discussed in both formal and informal meetings of American workers. It was in consequence of certain of these discussions and ensuing correspondence that forty of the foremost anthropologists of the country were invited to participate in the founding of the new organization at Pittsburg. Pursuant to this call, a meeting was held in Oakland Church, at 2 p. m., June 30, with

the Vice-President of Section H in the Chair. After preliminary deliberations, a constitution was formally adopted; and the meeting resolved itself into a committee to nominate and elect executive officers. Such officers were duly elected as follows:

President,	W J McGee,
Vice-President for four years,	F. W. Putnam,
" " " three years,	Franz Boas,
" " " two years,	W. H. Holmes,
" " " one year,	J. W. Powell,
Secretary,	George A. Dorsey,
Treasurer,	Roland B. Dixon,
Editor,	F. W. Hodge.

The judgment of the founders (expressed in correspondence as well as in discussion) favoring a Council large enough to include working anthropologists from all parts of the country, and the constitution being framed in accordance with this policy, the number of Councilors at large was fixed at twenty-four; and the following persons, all of whom except two (who chanced to be abroad) had endorsed the objects of the meeting, were elected to form, in conjunction with the executive officers, the Council of the Association: Frank Baker, Charles P. Bowditch, A. F. Chamberlain, Stewart Culin, Livingston Farrand, J. Walter Fewkes, Alice C. Fletcher, J. N. B. Hewitt, Walter Hough, Aleš Hrdlička, A. L. Kroeber, George Grant MacCurdy, O. T. Mason, Washington Matthews, J. D. McGuire, James Mooney, W. W. Newell, Frank Russell, M. H. Saville, Harlan I. Smith, Frederick Starr, John R. Swanton, Cyrus Thomas, and E. S. Wood.

For the Executive Committee provided for by the constitution the following were elected: Messrs Boas, Culin, Dorsey, Fewkes, Hodge, Holmes, MacCurdy, McGee, and Putnam. Two of the three standing committees (completed since the close of the meeting) are as follows, with the addition of the President *ex-officio:* On Program, Putnam, Boas, Holmes, Powell, Dorsey, Fewkes, and Russell; and on Publication, Hodge, Baker, Boas,

Chamberlain, Culin, Dorsey, Fletcher, Holmes, Powell, and Putnam. The Committee on Finance is not yet appointed. During the Pittsburg meeting the Association was represented in the Council of the A. A. A. S. by Professor Holmes and Dr Dorsey.

After the close of the organizing meeting there were two sessions of the Association, meeting as the Council; and during the afternoon of July 2 the Association met jointly with Section H of the A. A. A. S., for the presentation of scientific papers.

The next regular meeting of the Association will be held in Washington during the Convocation Week of 1902–'03.

The founding of the new Association is notable not only as the opening of an epoch in the development of the science in America, but as a manifestation of mutual tolerance and good will among specialists representing every department of the broad Science of Man and every section of the country. One of the most serious questions brought out during the discussion of the proposed movement during the last six months related to standards of membership, some of the prospective founders preferring to limit membership to professional workers, while others favored a policy of diffusion with election on the basis of interest in anthropology. It was with the view of holding this question in abeyance pending final discussion in the founding meeting that invitations to this meeting were limited to about forty working and teaching anthropologists; and one of the most important actions taken at Pittsburg was that providing that other anthropologists who so desire may, during the remaining months of the year, become affiliated with the Association and classed as founders. On all other issues there was substantial unanimity; so that it seems just to say that the new Association harmonizes the interests of the science in America, and unifies the aims and methods of a great science in a measure seldom attained in the creation of national scientific organizations.

The Section of Anthropology, A. A. A. S., was organized on June 30 as follows:

Vice-President, Stewart Culin.
Secretary, Harlan I. Smith.
Member of Council, W J McGee.
Sectional Committee: J. Walter Fewkes, Vice-President, 1901; George Grant MacCurdy, Secretary, 1901; Stewart Culin and Harlan I. Smith, *ex-officio;* Franz Boas, George A. Dorsey, W. H. Holmes, at large.
Member of General Committee, Walter Hough.

The Council of the A. A. A. S. took action on several matters recommended by the Section. Among these were the following reports of committees and resolutions:

1. Report of Committee on the Teaching of Anthropology in America.

To the Council of the A. A. A. S.: The Committee on the Teaching of Anthropology in America beg to report the continuation of correspondence and conferences in the interests of anthropological teaching. Some of the results of the correspondence are incorporated in a paper by one of the Committee (Dr MacCurdy), entitled "The Teaching of Anthropology in the United States," published in *Science*, January, 1902. During the year a course of lectures was delivered by one of the Committee (the chairman) in the Free Museum attached to the University of Pennsylvania, pursuant to the purposes of the Committee.

The expenses of the Committee have been inconsiderable, and no appropriation is asked. It is recommended that the Committee be continued.

W J McGee, *Chairman*,
Franz Boas,
W. H. Holmes.

2. Report of Committee on Anthropometric Measurements.

Anthropometric researches under the auspices of this Committee have been continued during the year. Professors Cattell and Boas, members of the Committee, and Professors Thorndike and Farrand, fellows of the Association, have during the year made measurements of

students entering and graduating from Columbia College, and have made other studies on individual differences. Professor Thorndike has investigated especially the correlation of traits in school children. Mr Farrington has studied the question as to whether brothers who have attended Columbia University are more alike than those who are not brothers. Mr Bair and Dr Wissler are calculating the results of measurements of school children made by Professor Boas. Professor Cattell is collecting data on individual differences, in which 1,000 students of Columbia University, 1,000 of the most eminent men in history, and 1,000 scientific men of the United States are being considered.

Progress has been made with the construction of a traveling set of anthropometric instruments, toward which an appropriation of $50 was made at the Denver meeting of the Association. It is believed that the model of a portable set of instruments would be of value for work in schools, for the study of primitive races, etc. The present set is the property of the Association and is to be used in the first instance in making physical and mental measurements of members. Such measurements were begun at the New York meeting, but they cannot be continued until a portable set of instruments is available and arrangements are made for assistance in carrying out the measurements. The instruments will be ready at the time of the Washington meeting, and an assistant could probably be secured to take the measurements if his traveling expenses were paid. We should be pleased if an appropriation to this Committee of $25 or $50 could be made for this purpose. An appropriation was made for a series of years by the British Association for its anthropometric laboratory. Our own measurements are more extended than those of the British Association, especially in the direction of mental traits; but it would be interesting to compare the measurements of the members of the British Association with similar measurements of American men of science.

J. McK. Cattell, *Chairman*,
W J McGee,
Franz Boas.

3. The Committee on the Protection and Preservation of Objects of Archeological Interest (of which the late Thomas Wilson was chairman) made an informal report of progress.

4. Resolutions touching a proposed American International Archeological Commission.

WHEREAS, The Second International American Conference, commonly known as the Pan-American Congress, in session duly assembled in the City of Mexico, January 29, 1902, adopted a recommendation to the several American nations participating in the Conference, that an "American International Archeological Commission" be created;

WHEREAS, The recommendation has been transmitted by the President of the United States to the Congress (Senate Document No. 330 of the 57th Congress, 1st Session), thereby giving the project official status in the United States; and

WHEREAS, The recommendation is in full accord with the spirit and objects of American science, while international agreement in laws relating to antiquities is desirable; therefore,

Resolved, That the American Association for the Advancement of Science heartily concurs in the recommendation of the Second International American Conference.

Resolved Further, That the Secretary of the Association send a copy of this Resolution to the Director of the Bureau of American Republics, as an expression of the judgment of the Association.

The foregoing resolutions are in accord with the action of the American Anthropological Association, which adopted the following:

WHEREAS, The Second International American Conference, commonly known as the Pan-American Congress, in session duly assembled in the City of Mexico, January 29, 1902, adopted a recommendation to the several American nations participating in the Conference, that an "American International Archeological Commission" be created, to promote archeological research, to aid in the preservation of antiquities, and to endeavor to establish an American International Museum; and

WHEREAS, The recommendation is in full accord with the spirit and objects of American science; therefore,

Resolved, That the American Anthropological Association heartily concurs in the recommendation of the Second International American Conference.

Resolved Further, That the Secretary of the Association send a copy of these Resolutions to the Director of the Bureau of American Republics as an expression of the judgment of the Association.

On the recommendation of the Section the following anthropologists were elected as fellows of the A. A. A. S.: Frank W.

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Blackmar, Livingston Farrand, W. H. Goodyear, A. E. Jenks, J. D. McGuire, William C. Mills, Charles L. Owen, Alton H. Thompson, and William Wallace Tooker.

The sectional officers for the ensuing meeting, elected on nomination of the sectional committee, are as follows: Vice-President, George A. Dorsey, Curator of Anthropology, Field Columbian Museum, Chicago; Secretary, Roland B. Dixon, Instructor in Anthropology, Harvard University, Cambridge.

The representatives of the Section participated freely in the meetings of the Council and General Committee of the A. A. A. S., which will hold its next ensuing meeting in Washington during the Convocation Week of 1902–'03.

Among the actions of general character taken by the Section were the appointment of a committee on the death of Dr Thomas Wilson, and the adoption of the following resolutions:

1. Memorial resolutions.

WHEREAS, The death of Dr Thomas Wilson, a former vice-president of the Association, has deprived us of one whose presence at our meetings has contributed much to their value, and has deprived prehistoric science of an indefatigable and earnest worker; in order to express our high appreciation of his worth and labor, we recommend the following resolutions:

Resolved, That in the death of Dr Thomas Wilson the Association has lost a most efficient and industrious worker in the field of prehistoric archeology, the example of whose devotion to science is worthy of emulation.

Resolved, That a copy of these resolutions be sent to his widow and family and that a second copy be placed among the records of the Section.

WARREN K. MOOREHEAD,
STEWART CULIN,
HARLAN I. SMITH,
J. WALTER FEWKES.

2. Resolution touching the American Anthropological Association.

Resolved, That it is the sense of this meeting that it is desirable to

bring about the closest possible correlation between the work of Section H of the American Association for the Advancement of Science and the American Anthropological Association.

The scientific proceedings of the meetings were of high character; and while the popular attendance was not large, the attendance of specialists and the interest and value of discussions were well above the average.

The retiring address of Vice-President Fewkes was on "Prehistoric Porto Rico." It comprised the results of recent researches undertaken by the author as an officer of the Bureau of American Ethnology, yet the theme was treated broadly in the light of all other information extant. Beginning with a summary of earlier literature and later studies up to the annexation of the island, Dr Fewkes proceeded to describe the antiquities and to interpret them by means of record and tradition as well as by analogy with the products of other Amerind tribes. Special attention was given to the so-called "collars" of carved stone, of which the author has recently collected several specimens; and extended consideration was given to the cult of the zemi, which dominated the social organization and industrial character of the Antillean aborigines. The zemi is a protean but always sacred thing, of the kind so characteristic of primitive culture — a mere stone, a carven idol, a painted device, a tattooed design, or other symbol of mystic (usually zoic) power. "Primarily the zemi . . . corresponds with the totem of the North American, and zemeism is practically another name for totemism, a form of ancestor worship." As a whole the address is by far the most satisfactory résumé of the archeology and ethnology of Porto Rico thus far prepared. It is printed in *Science*, Vol. XVI (July 18, 1892), pp. 94–109.

There were an exceptional number of papers relating to anthropology in general. Among these may be classed several communications relating to museums. Prof. W. H. Holmes outlined a system of "Classification and Arrangement of the Collections of an Anthropological Museum," the system being that

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developed during Professor Holmes' administration of the anthropological department of the U. S. National Museum. The full paper, with requisite illustrations, will soon appear in the report of the Museum for 1901. Dr Walter Hough described the "Preservation of Museum Specimens," also on the basis of experience in the National Museum. Some of the devices are suitable only for museum use, while others may be employed for domestic purposes, e. g., gasoline, a weak solution of corrosive sublimate in alcohol, etc. Vice-President Culin presented an instructive "Account of Anthropological Museums and Museum Economy," based on his experience in the Free Museum of Science and Art connected with the University of Pennsylvania, together with his studies in other institutions both in this country and abroad. Dr Harlan I. Smith outlined "Methods of Collecting Anthropologic Material," with special reference to the work of the American Museum of Natural History; the conclusion reached was that casual collecting is no longer worth while, that the synoptic method may well be replaced by judicious exchange among museums, and that the research method alone is worthy of encouragement. The paper is printed in the *Wisconsin Archeologist*, Vol. 1, July, 1902. Rev. G. Frederick Wright described the "Anthropological Museums in Central Asia," calling attention to the unexpected number and excellence of these institutions, those at Vladivostok, Blagovestchensk, Khabarovsk, Irkutsk, Minusinsk, Krasnoyarsk, Yeniseisk, Tomsk, Omsk, Biisk, Tashkent, and Tiflis receiving special attention. Frederick Houghton emphasized the importance of "Coöperation between the Anthropological Museum and the Public School," based on his experience in the schools of Buffalo. Both the paper and the ensuing discussion indicate a rapidly-growing appreciation of the well arranged scientific museum as an educational instrumentality. Mr Houghton's paper will appear in an early number of the *Journal of Education*, Boston.

Another paper of general character was "The Place of An-

thropology among the Sciences," by W J McGee. The author explained the youth of the science in its modern aspects as connected with its great relative complexity. The keynote of astronomy, the earliest of the sciences, may be said to be gravity, while that of chemistry, the next oldest science, may be defined as affinity; yet since chemical relations are at least indirectly controlled by gravity, the basis of the later science is really gravity + affinity. So, too, the keynote of botany, or phytology, is vitality, yet this property of plant-matter is but superadded to the gravity and the gravity + affinity with which the two older sciences are concerned. In the realm of zoölogy, motility, or the power of self-movement, is added in turn; and in anthropology, mentality, in all its bearings on conscious self-activity, becomes the keynote — yet this distinctive property is only added to the motility, vitality, affinity, and gravity to which the leading older sciences are especially devoted.

Under the title "Explorations of 1901 in Arizona," Dr Hough gave an account of one of the most important explorations carried on during the summer of 1901 for the U. S. National Museum with the coöperation of Mr P. G. Gates. The field covered lies in eastern Arizona; sixty ruins were visited, and eighteen of these were excavated. The results comprised over three thousand specimens, plans of twenty-four pueblos, a large number of photographs, with maps, etc. The paper will be published in full in the report of the Museum for 1901.

A communication entitled "Climatic Changes in Central Asia Traced to their Probable Causes, and Discussed with Reference to their Bearings on the Early Migrations of Mankind," was presented by Rev. G. Frederick Wright and criticised by J. Walter Fewkes, J. D. McGuire, Harlan I. Smith, W J McGee, Stewart Culin, W. H. Holmes, and others.

An appreciative memorial to "The late Dr Thomas Wilson" was presented by Warren K. Moorehead, and led to the creation and report of a committee as noted above.

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Somatology received due attention. Dr George Grant MacCurdy described "A Collection of Crania from Gazelle Peninsula, New Pomerania," obtained in 1894 through Frederick Mueller, of Amsterdam, and now in the Free Museum of Science and Art, Philadelphia. The skulls are small and all dolichocephalic. The minimum and maximum frontal diameters are small, averaging, respectively, 20.3 mm. and 25.7 mm. less than for English crania. The height averages greater than the greatest breadth, a character called hypsistencephaly; the crania are prognathous, platyrhine, platyopic, phenozygous, and megadont. Glabella and superciliary arches are prominent; apertura pyriformis is simian in character. Fossæ caninæ are pronounced. The teeth are well preserved and not crowded; the wisdom teeth are lacking in none. There is a tendency toward a division of the root in the first upper premolars. The alveolar arch of the upper jaw projects considerably beyond the third molars (in one case as much as 12 mm.). The percentage of first lower premolars with anterior roots is high; the spinal mentalis is practically wanting, and the angle of symphysis is large. The paper was illustrated by lantern pictures.

A paper under the title "Square Occipital in the Cranium of a Modern Othomi Mestizo," by Dr Nicolas León, of the Museo Nacional, Mexico, received attention. The specimen was from an ossuary at Tula Allende, State of Hidalgo, and is apparently from a symmetrically developed male of about forty years, rather confidently identified as the son of a pure-blood Othomi father and a mixed white mother. The chief peculiarity of the cranium is the geometric form of the occipital, which is nearly square. The case was offered for record as of probable use in future morphologic studies.

Another somatologic contribution was "Evanescent Congenital Pigmentation in the Sacro-Lumbar Region," by H. Newell Wardle. The paper appears in the present number of the *American Anthropologist*.

A paper on "The Growth of Children," by Dr Franz Boas, was, on the motion of the author, presented by title only.

Except in relation to other subjects, psychology received little attention in the Section; but the subject was brought out in the leading scientific contribution to the Pittsburg meeting, i. e., the address of the retiring President, Dr Charles Sedgwick Minot, on "The Problem of Consciousness in its Biological Aspects." Although suggested chiefly by the phenomena of consciousness in lower life, the exposition was notable for its conformity with and corroboration of the now prevailing view among anthropologists concerning that fundamental property of nature which Powell discussed under "activital similarities," which Brinton styled "the unity of mind," and which has since been formulated as the *responsivity of mind*. The striking and most gratifying feature of the address was the unquestioned recognition of consciousness as a natural phenomenon, one to be viewed, measured, compared in its various manifestations, and finally discussed in rational ways and in accordance with rigorous scientific methods. The ideas were most effectively—indeed, charmingly—presented; and while mode of approach and conclusions were alike curiously repetitive of that foundation of modern science, Bacon's *Novum Organum*, the address was most timely and fitting, at once a model and a nucleus for the 320 scientific papers presented at the Pittsburg meeting.

As usual technology, including archeology, was well represented at Pittsburg. Under the title "The Human Effigy Pipe taken from the Adena Mound, Ross County, Ohio," Dr W. C. Mills described and exhibited an impressive example of aboriginal handiwork. The pipe is tubular in form, eight inches in length, and represents a human body wearing a decorated loincloth. The material is raw fireclay. J. Walter Fewkes, J. D. McGuire, Warren K. Moorehead, and others contributed to the discussion of the specimen. Dr Mills also exhibited "Microscopical Sections of Flint from Flint Ridge, Licking County,

Ohio," with the object of demonstrating that this material contains foramenifera which may be utilized in the identification of localities. He also described the "Burials of Adena Mound," with abundant lantern illustrations depicting the stages in the excavation of this structure. Originally the mound was 26 feet high and 445 feet in circumference, and of the usual rounded-conical form. The excavation showed that it was built at two different periods, the earlier structure being 20 feet high and 90 feet in diameter at the base, while the outline of the older and inner mound was not concentric with that of the completed structure. None of the burials in the older mound was higher than five feet above the natural surface; the remains were enveloped in bark or a coarse woven fabric, and then enclosed in rude wooden sepulchers. The burials in the newer portion of the mound were near the surface, and no traces of bark or wood were found with the skeletons, though the implements and other artifacts of the two periods were similar.

The "Gravel Kame Burials in Ohio" were described by Warren K. Moorehead, who has spent ten or twelve seasons in the exploration of Ohio antiquities. The interments were in gravel knolls probably of morainal origin, and were perhaps earlier than those within the mounds; the crania seem different from those of the artificial tumuli, and some of the artifacts are decidedly dissimilar. The author inclined to the opinion that the kame burials represent a tribe or tribes distinct from the builders of the mounds in the same region.

Under the title "The Hernandes Shell-heap, Ormond, Florida," Prof. C. H. Hitchcock presented the results of an important archeologic discovery. The shell-heap was near Ormond on the "Spanish Grant"; twenty kinds of mollusca were found, together with bones of deer, dog of two varieties, opossum, wolf, porpoise, alligator, turtle, and several species of fish, as well as human implements. The most important discovery was that of bones of the now extinct great auk *(Plautus impennis)*. Two specimens

of the humerus of this species were exhibited by the author and Prof. O. P. Hay. The communication was discussed by Harlan I. Smith, J. D. McGuire, and others.

Through the courtesy of Dr W. J. Holland, Director of Carnegie Museum, Dr M. H. Saville exhibited "A Rare Form of Sculpture from Eastern Mexico" of much interest. The specimen was obtained from the Totonacan habitat within the present states of Vera Cruz and Puebla, a region yielding many of the stone "yokes," or "collars," of related symbolism. The sculpture represents a masked human figure similar to a number in the American Museum of Natural History, New York; and a striking feature emphasized by the author is the representation of snakes held in the mouths of the figures in a manner recalling the most impressive ceremony of the Hopi Indians. The specimen and its symbolism were discussed by W. H. Holmes, J. Walter Fewkes, J. D. McGuire, and Walter Hough.

Dr Harlan I. Smith made an "Exhibition of a Modern Clay Tablet from Michigan" in illustration of the type of counterfeit antiquities of which so many have been reported from northern United States during recent years. Dr E. L. Moseley exhibited "The Sandusky Engraved Slates," i. e., two small slabs of argillite, apparently designed as pendant ornaments; one was engraved with a proboscidean on one side and a coiled rattlesnake on the reverse; the other was engraved on each side with an Indian face. The history of the specimens seemed to point clearly to an aboriginal, but probably post-Columbian, origin, though the rude carving suggested the craft of the pioneer schoolboy rather than that of the native artist. Dr Moseley also exhibited an interesting specimen of "Charcoal Covered by Stalagmite from Put-in-Bay," illustrating the comparative rapidity of stalagmitic growth.

A notable paper was presented by Dr George H. Pepper, under the title "The Throwing-Stick." The material described was chiefly prehistoric, and from southwestern United States. Of the

three perfect specimens known to represent the region and period, one is in the Hyde Collection, American Museum of Natural History, another in the State Collection, Salt Lake City, Utah, and the third in possession of Prof. Frederick Starr, University of Chicago; two imperfect specimens are in the Free Museum of Science and Art, Philadelphia. The author discussed both the technology and the symbolism of these throwing-sticks, instituting comparisons with the Mexican atlatl and other devices. The paper was discussed at length by Vice-President Culin, who interpreted the snake and lightning symbolism revealed through the Philadelphia specimens; by W J McGee, who explained that the hardwood foreshaft of the arrow or dart is a vestigial symbol of the animal tooth, and also that among the Seri Indians the bow is so closely connected with the atlatl that the throwing motion still persists; while J. Walter Fewkes and others contributed to the subject. The full paper is designed for publication in the *Bulletin* of the American Museum of Natural History.

Sophiology, including ceremonies, formed the subject of two or three important communications, with extended discussion. Dr George A. Dorsey described an "Osage Mourning-War Ceremony," in which ritualistic and symbolic features were especially prominent. The paper appears in the present number of this journal. In discussion, Dr Boas pointed out that ritual is especially characteristic of primitive man, giving expression to his most permanent activities; the rituals of different tribes are remarkably similar, yet the explanations given by the tribesmen often differ fundamentally — indeed, it would seem clear that, at least among primitive folk, actions are more permanent than thoughts. In an early stage of research the explanations of rituals are sought to elucidate problems of ritualistic development; but in a later stage the rituals themselves serve to elucidate the psychic development expressed in these explanations. Dr Fewkes followed, pointing out the way in which ritualistic development illustrates the growth of primitive faiths; for while belief is the initiative force lying be-

hind the ceremony, the ritual serves as an ever-active modifying force by which the belief is conditioned and shaped. He was much impressed with the importance of recording such ceremonies as that described by the author; they are fundamental facts which must be gathered promptly, else they will be forever lost; and once recorded they will assuredly find explanations as knowledge advances. In most cases, indeed, full explanations can not be derived from single ceremonies, nor even from all the ceremonies of a single tribe; in such cases the records will serve as a basis for comparative study. W J McGee added that peoples who participate in ceremonies can seldom explain them any more than a caged bird can tell why it beats its wings against the wires in vain efforts to migrate southward in the autumn. Ceremonies are at least partly instinctive, and it is largely through the heritage of experience and subconscious utilization of mnemonic order that the successive movements are guided. Thus the points of the compass are prominent in the rituals of all primitive peoples; and recognition of these is instinctive and undoubtedly inherited from even lower stages of development than those represented by Amerind tribes, and so persistent that even the enlightened Caucasian who seldom has occasion to remember the points of the compass usually carries them in his mind — indeed it may be said that the sense of orientation is our strongest instinct. Perhaps the closest analogy with the ritualistic movements of primitive folk may be found in the migratory routes of birds, which are sometimes so permanently fixed as to outlast great geographic changes. Dr Hough called attention to the community-sense expressed in primitive ceremonies; the primary thought may be that of a single man, yet all spontaneously mimic the action prompted by this thought, the older teaching the younger and the initiates guiding the uninitiated until all minds work in unison. Among the Hopi, ceremony takes the place of the school; it is the leading educational mechanism.

Dr Fewkes presented an illustrated paper entitled "A War

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Festival of the Hopi Indians," in which he described one of the most significant ceremonies of that tribe. The paper is published in this number under the title "Minor Hopi Festivals."

W J McGee described the "Mortuary Ceremonies of the Cocopa Indians," who occupy the lower part of the valley of Colorado river. Their territory extends from the international boundary to the head of tides and salt water entering from the Gulf of California. Although they subsist in part by fishing and the chase, they are essentially agricultural. By reason of the floods of the Colorado they are driven annually from the bottom lands of the river to the higher grounds, just as were the ancient Egyptians occupying the valley of the Nile. The annual migrations are of great regularity, and have affected the habits of the tribe in various ways. One consequence of the enforced abandonment of homes during each summer is an enfeebled home sense; and this is connected with mortuary customs, both directly and through an obscure mythology. On the death of an adult his small properties are collected for distribution among non-relatives, while the body is placed on a rude bier and fuel is gathered for cremating it. Especially if the decedent is a householder, intelligence of his death spreads rapidly, and fellow tribesmen of other clans, as well as Indians of other tribes and even Mexicans and Americans, gather and help themselves to such property as weapons, fishing tackle, stored grain and other food supplies, fowls, horses, saddles and bridles, and other chattels. Meantime the pyre is being arranged alongside the house, and any remnants of the chattels (or all, in case claimants have not appeared) are placed on and around it; and about the end of the second day this is fired. The light-framed house soon catches from the pyre and is consumed with it, while any neighboring houses belonging to the family or clan also take fire, either naturally or by the help of the mourners, so that the entire homestead is destroyed. The surviving members of the family abandon the site forever; and it is shunned for years by other families of the

tribe. The communication was discussed by George A. Dorsey, Walter Hough, and J. D. McGuire.

By reason of absence of the authors, a few papers were presented by title only; among these were "The Possible Origin of the Folklore about Various Animals," by H. A. Surface; "The Australian Native," by J. A. Fowler; and "Uses of Archeological Museums in Education in the Public Schools," by Lee H. Smith.

A chronologic record of the sessions and papers of the Section, prepared by Secretary Smith, was printed in *Science*, vol. XVI, August 8, 1902.

MINOR HOPI FESTIVALS

By J. WALTER FEWKES

The War Festival at Walpi

INTRODUCTION

The Hopi Indians, as their name indicates, are preëminently people of peace, who from necessity have often been obliged, in their past, to defend themselves from warlike intruders on their farms or from hostile attacks on their pueblos. For many years, unaided, they waged an almost constant warfare with the predatory Utes, Apaches, and Navahos, who devastated their farms and approached even to the foothills of the mesas on which their villages stand. During the seventeenth, eighteenth, and the first half of the nineteenth centuries these hostilities were almost continuous. Several of the older men [2] still show scars on their bodies, the results of wounds received in these affrays.

Evidences of these former fights are not drawn from tradition alone, for a willing listener may still hear them from the lips of participants. The cliffs themselves bear mute testimony of the warfare with which the Hopi defended their mesa homes. The Indians still point out to the sojourner climbing the trail a long score of marks cut in the rock, denoting the number of the dead who fell in one of these fights in which no man now

[1] The observations here recorded were made while the author was connected with the Bureau of American Ethnology, and are published by permission.

[2] Hani, Governor of Walpi, once showed the author wounds on his hand and body received in one of the last of the raids. He said that when he was a boy he went with a party consisting of his uncle Macali, Tavupa, Lemoya, Weeki, Tabaco, Totci, and himself, to what is now Cotton's store to trade. They were attacked by Navahos while asleep, and the first four were killed but the others escaped to Walpi. Tabaco died later, but Totci was still living at Zuñi in 1900.

living participated. On the edge of the rocky buttress overhanging the trail to the East Mesa as one enters Hano, there can still be seen the grooves in the rock along which the ancient warriors shot their arrows or threw their spears at the enemy below them. In a cleft in the same mesa the old men point out a place[1] where the scalps of their enemies were once buried, and possibly there are other "scalp houses" at the other mesas. There are many other evidences that might be presented in support of traditions that the Hopi engaged their foes at the very entrances to their villages. Numerous as are the sources from which we might draw material shedding light on old Hopi war customs, now rapidly vanishing, none is more significant than ceremonial survivals or the persistence of war customs in their present ritual, which, so far as the author knows, have never been described. One of these is an annual festival which will at least be highly modified and probably will disappear in the immediate future. Connected with this festival there are certain secret rites performed before idols of the War-gods and that of their "mother," or "grandmother," the Spider-woman. The author has been informed that this or a like festival is celebrated annually at the three Middle Mesa pueblos, but he would judge from the statements of Dr Dorsey and Rev. H. R. Voth, who have recently carefully described[2] two of the Oraibi festivals, that a War-dance has not lately been performed in that pueblo. There is no War festival at Sichumovi, and the exercises at Hano consist of secret rites about the altars herein described.

One of the prominent societies in the social organization of the true Hopi pueblos is a fraternity of warriors called the *Kalektaka*. This fraternity corresponds in a general way to the

[1] Called *Yovotaña*. The scalps attached to a stick were smoked over a fire kindled in the plaza of Walpi. A "medicine" was afterward made from them and portions of the entrails. Two Navahos killed north of East Mesa had their hearts cut out and buried.

[2] *The Oraibi Soyal Ceremony*, Field Columbian Museum, Anthropological Series, vol. III, No. 1.

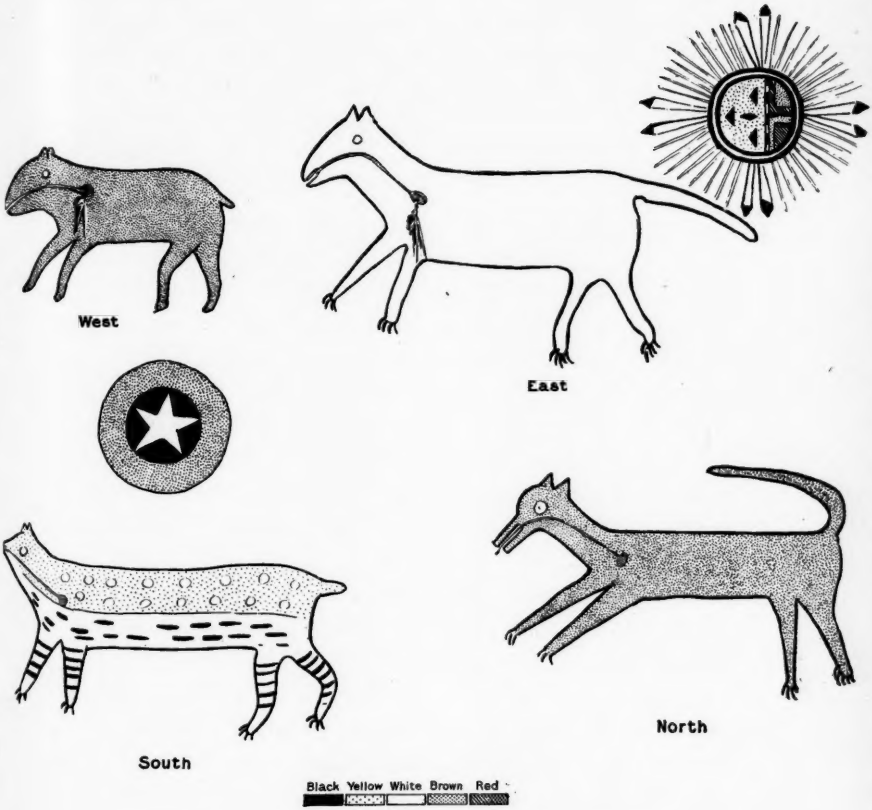
Priesthood of the Bow at Zuñi, but in the Hopi pueblos this society has less power than the Zuñi priesthood. Its annual festival is called *Momtcita*, the prominent idols[1] being the Spider-woman and her twin offspring, the Little War-gods.

Pautiwa, the chief of the War society, is also chief of the Eagle clan of the *Pakab* phratry; he has charge of the above-mentioned idols, claiming to have inherited them from his predecessor, an ancestral chief of his clan. The present membership of the War society numbers about sixty. While the majority belong to the same clan as their chief, forming the nucleus of the society, there are others who belong to several unrelated clans. Since the festival is so closely connected with one group of clans, a brief reference to the traditional history of the group may be instructive.

Tradition ascribes the early homes of the Eagle clan to pueblos, now in ruins, situated to the east of the present Hopi country, and resemblances in the ceremonies and the ceremonial paraphernalia of the *Kalektaka* to those of the warriors at Zuñi support these traditions. It is said that this clan once lived at Awatobi, and that after the destruction of this village by the other Hopi the survivors of the clan built a new pueblo in the foothills east of the present settlements of the Middle Mesa. This village was later abandoned, a portion of the inhabitants going to Walpi, carrying with them the idol of their War-god and other characteristic objects now displayed in the War festival, as will later be described.

In general the plan of the War festival of the Hopi resembles that of their other ceremonies in that it consists of three parts, occurring on three different days, as follows: 1, A preliminary informal gathering of the chiefs who engage in a ceremonial smoke and make certain prayer-objects. 2, A formal meeting of all the members of the fraternity for the purpose of manufacturing more

[1] Several Walpi clans have stone images of the God of War which are set up in their respective kivas in the *Soyaluña* ceremony at that pueblo.



FIGURES ON THE FOUR WALLS OF THE WARRIORS' ROOM

North wall, Mountain-lion (*Toho*); West wall, Bear (*Honaü*); South wall, Wildcat (*Tokotci*); East wall, Wolf (*Kwewü*).

elaborate prayer symbols, at which idols and sacred objects owned by the society are arranged in a prescribed manner on the floor of a room set apart for this purpose; prayers and rites before them make up the secret rites of the festival. 3, A public dance of the warriors in the streets and the plaza of Walpi, when the participants, bearing the weapons of war and characteristically painted, perform in the presence of spectators.

ROOM OF THE WAR-GOD

The room at Walpi (plate XXIII, B) in which the secret rites of the warriors occur is one of the least known to visitors. Its ceiling is low; it is entered by a ladder (*e*), from the roof as in a kiva, but it bears no other resemblance to one of these ceremonial chambers. It is situated in the second tier of rooms, just under the old house of the clan above mentioned, and contains the warrior fetishes and paraphernalia.

The war chamber is twice as long as wide; it is rectangular, is without windows, and has a small fireplace (*fc*) in one corner. Ordinarily this room is closed, as it is used only for the annual celebration of the society. In the north wall, diagonally opposite the fireplace, there is a small niche (*c*) closed by a slab of stone (*ps*) ordinarily sealed in place with clay. This niche contains the idols of the God of War and other fetishes hereafter described.

Each of the four walls is decorated with a painting of an animal, and as this warrior room is oriented to the Hopi cardinal points, the animals depicted on the walls are those associated by warriors with these world-quarters (plate XXII). On the north wall there is a brown painting of a mountain-lion (*toho*), three feet long, with legs extended and facing west. Its eye is a fragment of Haliotis shell, and a red line continued to the mouth represents the breath-line which terminates in the heart. The outline of the figure is black, and its claws, which are the same color, are curved. The drawing on the east wall represents a

wolf (*kwewú*), about three feet in its entire length and painted white, the color symbolic of the east. Just behind it is drawn a disk symbolic of the sun with four pairs of radiating marks, or feathers, and red lines representing sunbeams. The figure on the south wall represents a wild-cat (*tokotci*); it has a white belly and legs margined in black, while its back is yellow and dotted. Above it is a circle enclosing a five-pointed star. The fourth mural painting, that on the west wall, represents a bear (*honaü*) which is colored brown. This is the only room in Walpi which has these symbolic animals represented on its walls.

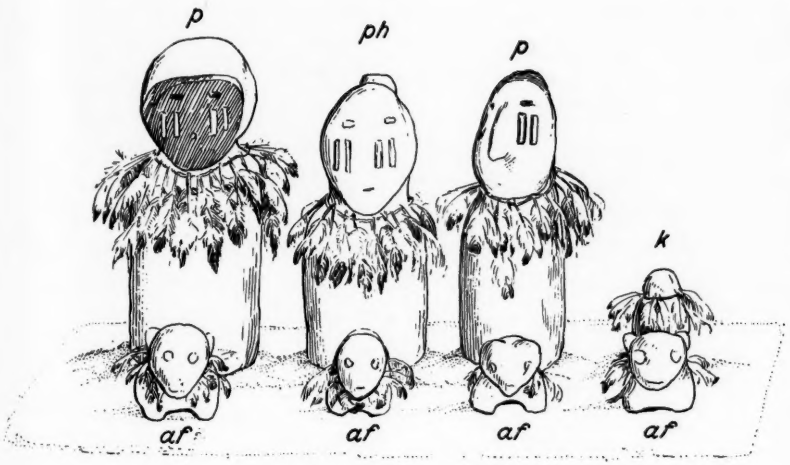
PRELIMINARY ASSEMBLY

The preliminary assembly of the priests took place at Walpi in the house of the oldest woman of the *Pakab* clan, on December 23, 1900, at about 6 oclock P.M. The gathering consisted of two chiefs, Pautiwa and Maho, also Piba, Kannü, and one or two other men who sat about the corner fireplace. All smoked "for rain," terms of relationship being exchanged as the pipe was passed from one priest to another. After all had smoked for some time, Pautiwa prayed, and was followed in turn by Maho, Piba, Kannü, and the others. As each prayed the others responded "*Anchai!*" After additional smoking and praying the chief prepared stringed feathers, or prayers symbolized by objects, for future use.

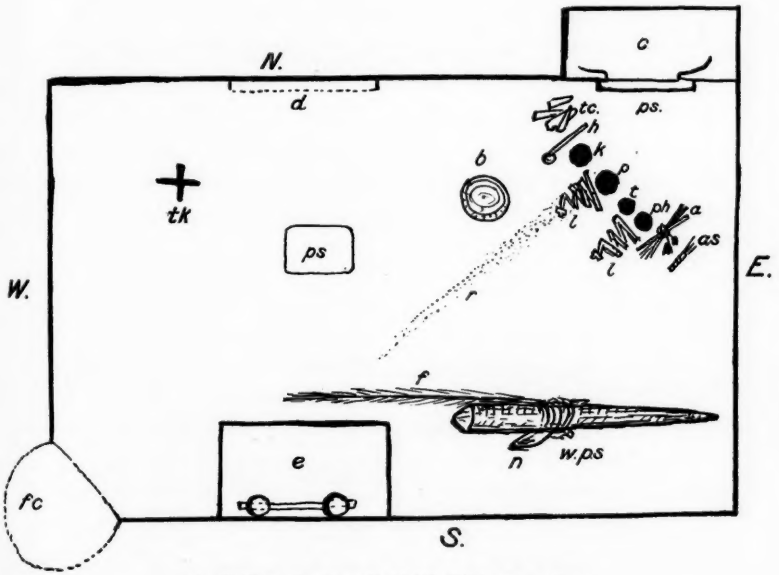
Ordinarily a preliminary assembly of this kind is followed, on the next morning, by a public announcement from a housetop by the Speaker-chief. This, however, did not take place in the War festival, but word of its coming was quietly circulated among the warriors.

MEETING OF THE WARRIORS

A meeting of all the warriors occurred in the room of the War-god five days after the preliminary assembly, at which time the War-god idols were taken out of the niche in which they are



A. IDOLS OF THE HANO WAR ALTAR



B. DIAGRAM OF ROOM AND OF THE WALPI WAR ALTAR

a, Bundle of arrows; *af*, Animal pets of War-god; *as*, Aspergill; *b*, Tray of sacred meal; *c*, Crypt in which idols are kept; *d*, Doorway to back room; *e*, Entrance to war room, showing ladder; *f*, Eagle feather; *h*, Ancient war-club with attached stone; *k*, Idol of Spider-woman; *l*, Lightning framework; *n*, Package of sacred meal; *p*, Idol of Püükoñhoya; *ph*, Idol of Paluñahoya; *ps*, Paint-stone; *r*, Line of meal on the floor; *t*, Tiponi; *tc*, Stone implements; *tk*, Wooden cross (*tokpela*); *wps*, Warrior prayer-stick.

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kept and arranged on the floor, forming what may be called a War-altar.

THE WALPI WAR-ALTAR

When a priesthood in primitive society acts in concert for some mutual wish, the members rely for aid on the magic power of certain natural or artificial forms of objects belonging to the priesthood. These articles are installed in a prescribed manner and collectively form an altar.[1] As the desire of warriors is, naturally, success in war, this altar is supposed to have magic power to aid them in that direction.

One of the first events on the opening day of the War festival is the installation of this altar, which occurs in a room devoted to the War-god. This is the traditional home of the fetishes of warriors, and here, away from the eyes of the vulgar, they may be seen by all the initiated. It needs but a glance at these objects to discover what little they have in common with those which form the majority of the Hopi altars; they are not, as is generally the case, connected with rain-making and growth ceremonies, nor, as will later be seen, do the rites performed before them have these functions. They are connected with war, and the magic power they are supposed to possess is invoked for success in war, not in agricultural pursuits.

WAR-IDOLS AND OTHER OBJECTS

The most conspicuous of these objects is the idol of the War-god, *Püükoñhoya*, a black stone image about eighteen inches high, having a human form but with a nearly cylindrical body and spherical head, and with a conical cap. Its position (*p*) is indicated in plate XXIII, B. Rude indentations in the face mark eyes and mouth; the fingers are painted on the surface of the body, but neither legs nor arms are cut in relief. The most conspicuous marks on this image are pairs of short, parallel white bands on each cheek and breast and on the lower part of the

[1] In Hopi called *poñya*. The term "altar," which is the nearest English equivalent and has been adopted by later writers, is not a wholly satisfactory translation.

body. These markings are characteristic of the War-god or cultus hero of the warriors.[1]

A second stone idol, of about the same size, stands by the side of the one described. The image, called *Paluñahoya* (*ph*), is brown, with a white face on which are depicted eyes and mouth. Its head has a conical appendage resembling a hood, and is but slightly differentiated from the body by a groove indicating the neck.

The third stone image (*k*) is brown or black, of almost spherical shape, and has no resemblance to a human form. It is placed to the right of the War-god idol, and is known as Spider-woman. Between the two images last mentioned is a cylindrical object (*t*), called a *tiponi*, wrapped with white cotton string, its diameter diminishing slightly from base to apex. Numerous long feathers project from its apex, and a "necklace" of many small sea-shells is tied about its upper part. From the base of the *tiponi* there was drawn across the floor a line of meal, on which lay a string with an attached feather, representing a symbolic trail or pathway along which magic influences are supposed to pass. This object is the badge of the Warrior-chief.

There are numerous other objects on the floor near the idol, one of the most characteristic of which is a framework (*l*) composed of slats of wood with the ends tied together in such a manner that it can be extended or shortened; in the former case it has a zigzag form suggesting a shaft of lightning and giving the implement the name of "lightning framework." In public exercises a personator of the War-god commonly carries one of these objects which he extends and retracts by alternately separating the slats and drawing them together.[2]

At the left of the image of *Paluñahoya* there is a bundle of

[1] Certain species of hawk have two parallel rows of feathers on each side of the mouth which probably suggested the facial designs; the parallel marks on the body represent feathers, or rows of the same.

[2] For a figure of a personator of *Püükoñhoya* with the lightning framework see *A Journal of American Ethnology and Archæology*, vol. II.

arrows (*a*) tied by a string to which shells are attached; and to the right of the stone representing Spider-woman is a stick (*h*) with a stone tied in a bag at one end — a now obsolete implement of war. Near this ancient weapon there are several well-polished, light-brown stones (*tc*) resembling the so-called *tcamahias* which are arranged about the sand-picture of the Antelope altar in the Walpi Snake-dance. To these stones (which also are an ancient form of weapon) are tied strings with attached feathers.

From the rafters above the row of objects on the floor forming the altar there hangs, horizontally, a rod to which are attached three vertical, semicircular hoops covered with raw cotton, symbolizing rain-clouds; and a number of strings of equal length are suspended from the rod, representing falling rain. A wooden cross (*tk*), called *tokpela*, also hangs from the roof.

An examination of the objects described reveals the absence of many of the symbols which characterize most Hopi altars. Thus, symbols of falling rain and of corn are subordinate or wanting, but are replaced by implements of war; the Goddess of Growth is represented by the Spider-woman, grandmother of the twin War-gods.

This is not the proper place to discuss ideas of magical powers which primitive man ascribes to natural objects, idols, or symbols; but a belief in the mysterious powers, as well as in the correlative thought that by certain acts these powers can be made to aid mankind, is universal. Among many qualities which impart magic power to objects may be mentioned their form, age, and association with events or other mysterious influences. The objects themselves may be animate or inanimate, generally the latter, and they appear in primitive religion in such forms as totems, charms, mascots, and the like. Every priest's power of magic is augmented to the extent in which he can control the magic power of these objects or force them to aid him. The idols and old war implements are supposed to have certain magic power and are brought together as symbols of that power.

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After assembling in the pueblo on the fifth day, each warrior made a prayer-stick (*wps*) with a single shaft, about the length of his index finger, pointed at both ends and with an eagle-feather (*f*) and a packet of meal (*n*) tied midway of its length, so that, in all, fifty-nine of these objects were made. When all had finished making them, the chief swept the floor and placed in the middle of the room the flat stone which is used to close the niche in which the war images are tightly sealed when not in ceremonial use. Upon this stone he poured a little "medicine" from the bowl, to which he added saliva, and ground in the mixture some soft iron oxide which formed a red pigment called *cuta*. While Pautiwa, their chief, was thus occupied, the warriors smoked; and when he had finished, all prayed in sequence, after which everyone approached the stone slab (*ps*) on which the paint was ground, and, holding his prayer-stick in his left hand, painted it with the fingers of the right, at the same time singing a low, melodious War-song. The painting finished, the participants sprinkled a little glistening micaceous hematite over the shafts of their prayer-sticks and placed them in a basket before the idol of the War-god.

The chief next made four prayer-sticks with double shafts, only two of which had facets on one of the component parts, but all were painted green and had feathers, herbs, and packets of corn tied to them. He likewise made a feathered string for the god *Masauû*, and offerings for other supernatural beings. At the close of the dance the warrior prayer-sticks were deposited in various nooks or shrines, in the rafters of the old houses, and elsewhere.

On the night following the making of the warrior prayer-sticks, ceremonies were held in the room of the War-god. These exercises began shortly after midnight, and it was stated that a personation of *Masauû* appeared at that time, but the author was unable to witness them on account of other observations in adjacent kivas.

The War-dance

The public War-dance occurred at sunrise on the following morning. Each participant carried a gun or other weapon which, in the progress of the dance, he fired into the air. The dance, which was accompanied by a drum, was a spirited one.

There are resemblances between this War festival at Walpi and that at Zuñi; and there exists a close similarity between the *Kalektaka* society of the Hopi and the Priesthood of the Bow of the latter tribe. The author has seen at Zuñi warrior prayer-sticks closely resembling those of the *Kalektaka* described above and practically identical with those from Rio Grande pueblos.

The traditions of this War fraternity and those of the clan from which it was derived point to a former closer contact with the Zuñi, thus indicating a source from which the Hopi War celebration possibly originated. Regarding the ancient homes of the *Pakab* clan, we know enough to justify the supposition that it was not far from a ruin, called Kintiel by the Navaho, twenty-five miles north of Navaho station on the Santa Fé Pacific railroad. It is well-nigh proven that this clan lived at Awatobi two centuries ago, but which of the numerous ruins east of the Hopi pueblos were inhabited by *Pakab* clans, future research must decide. After the destruction of Awatobi, its survivors were carried to the foothills of the Middle Mesa, where they built a town which was later abandoned. From this pueblo the ancestors of the existing *Pakab* men and women at Walpi went to the East Mesa. In the light of this tradition the War-dance of Walpi may be regarded as a survival of an old Awatobi festival, which in turn was related to the ceremonies of the Priesthood of the Bow at Zuñi.

The War Festival at Hano

As shown in the preceding pages, the War festival at Walpi is quite distinct from that of the Winter Solstice ceremony, the War-altar being placed and the accompanying secret rites being

performed in a special room used for that purpose only, while the Walpi Winter Solstice altars are erected in kivas. At the neighboring pueblo of Hano the conditions are somewhat different, for at that village the War-rites form a part of the Solstice festival, and the War-altars (of which there is one in each of the two kivas) are placed in the same room as those used in the festival of the Winter Solstice. These Hano altars may be distinguished by the names of the rooms in which they are placed, i. e., the *Tewa-kiva* War-altar and the *Kisombi-kiva* War-altar. In both of these, as in that at Walpi, the War-god images occupy prominent positions. The former consist of eight stone figurines arranged in two parallel rows, those in one row representing gods of human form, those in the other gods of animal form. The idols in one row are called *Püükoñhoya* (*p*, *p*), *Paluñahoya* (*ph*), and *Kokyañ-wüqti* (*k*); each object (*af*) in the second row is called a "pet" of the being before whose image it stands. All these idols occupy a rectangular field made of prayer-meal, from which a line of the same material is drawn to the base of the ladder by which one enters the room.

The War-idols of the *Kisombi-kiva* resemble those of the *Tewa-kiva* and bear like names; they are placed on the raised floor of the kiva, the Winter Solstice altar being in the same relative ceremonial region. Of these four idols the central and largest represents *Püükoñhoya*, in front of which is the stone of the Spider-woman (*Kokyañ-wüqti*), and at the left is the idol of *Paluñahoya*. A bare, bird-shaped stone, which stands near the last-mentioned, is called *Wikozro*,[1] an equivalent of a Bird-god or a Sky-god in Walpi mythology. These idols also stand on a rectangular field of meal strewn on the northeastern portion of the floor, and from it a line of meal is drawn to the base of the ladder.

A comparative study of the Hano War-idols reveals a likeness

[1] Evidently, judging from a remark by one of the old men, this is a Sky-god peronation with bird symbolism.

in shape and in name between them and the images used in certain Rio Grande pueblos. This should be expected when it is considered that Hano is a Tanoan pueblo. These likenesses favor the belief that the form of the war cult which they illustrate was derived from New Mexico.

The author witnessed no public war exhibition or dance of the Hano warriors, but it can hardly be doubted that in former times such occurred, and it may still be resurrected from time to time at the present day.[1]

Before passing to the consideration of other festivals having no relation to the one described, we may record an incident illustrating war customs which occurred at Oraibi in the spring of 1891, when a squad of six soldiers and two civilians went to Oraibi to arrest certain Indians. The natives manifested hostility, and gathered on the housetops to offer resistance. On account of their attitude and the insignificance of the military force, it was wisely decided by the officer in command to withdraw, but the soldiers returned a few weeks later with several troops of cavalry and some mountain howitzers.

At this time the author was living at the East Mesa, and learned from Polaka, a Hano Indian who accompanied the party, of certain Oraibi personators who appeared on this occasion. The Indians, it seems, dressed three of their number to represent the three War-gods,— *Masaûû*, *Kokyañ-wüqti*, and *Püükoñhoya*. The first two, arrayed in prescribed costumes, appeared in the plaza, and one of them, by means of an aspergill, threw "charm" liquid on the soldiers. The last mentioned, or the

[1] While, as a rule, ceremony is less mutable than mythology, and far more conservative than explanation of rites, both ritual and mythology slowly change with advancement in culture. A prominent element in the mutation of ceremony is syncopation — the dropping of rites at one stage of progress being deemed essential. The Hopi ferial calendar is full of these modifications, which often change the whole aspect of the ritual. This is apparent when we compare the same festival in different Hopi pueblos where slight initial changes have grown into radical differences. It is also seen when we compare the present festivals with those of the same pueblo in the past.

Little War-god, did not appear in public, and the author was informed that his arrival on the scene would have been a signal for the beginning of hostilities, which were happily averted.

That part of this episode which is especially instructive to the ethnologist is the personation of the War-gods (two of which are symbolized by graven images on the War-altars above described) by men in carrying out the war customs which survived such a short time ago in the isolated pueblo of Oraibi.

The Lesser Mamzrauti

INTRODUCTION

From the War festival and its altars we turn to consider a subject of very different character and meaning—a festival called the *Lesser Mamzrauti*, which has been added to the Hopi ceremonial calendar from the ill-fated pueblo of Awatobi, and which has never been described.[1] The great Hopi festivals, as a rule, are complemented by lesser ceremonies, so that the same society of priests usually has two annual presentations of its rites — one elaborated, the other abbreviated — about six months apart. The smaller festivals sometimes occur twice a year, also indicating the division of the calendar into two parts.[2] The lesser mysteries of the Snake and Flute priests have already been described by the author, who has witnessed also those of the *Lalakoñti* and *Mamzrauti*. The former is simply a meeting of chiefs, the latter has an altar and a public dance differing somewhat from the greater ceremony.

The lesser *Mamzrauti* witnessed in 1900 lasted five days, beginning with the assembly on March 11th and closing on March

[1] Probably there is a *Mamzrauti* at each of the Middle Mesa pueblos; and while we have no description of the Oraibi variant, the author has a photograph of the public dance at that pueblo made over ten years ago. The Oraibi *Marau* altar forms one of the groups of lay figures in the Field Columbian Museum, Chicago, made under the direction of Rev. H. R. Voth.

[2] Payne (*History of America*, vol. II) has shown a similar division in the Aztec ferial calendar.

THE PALAHIKO-MANA DANCE

15th. The two important aspects of the festival here considered are the altar and the public dance, the latter called *Palahiktikibi* on account of the appearance of certain personages called *Palahik-tiyo* and *Palahiko-mana* — cultus hero and heroine of the society. The altar is a part of the main altar erected at the greater *Mamzṛauti* in October; the public dance has simply the cultus heroes, which are inconspicuous in the autumnal festival. The greater part of the assembly day was occupied by the installation of the altar objects (*wimi*)[1] in the *Nacab-kiva* by Saha and Saliko, the two chieftainesses. Nothing of great importance took place on the following three days, but the chiefs remained in the kiva, and at intervals members of the society came to sing, smoke, and recite prayers. Each evening there were chorus songs which lasted far into the night, and earlier or later all the women tied stringed feathers to the altar objects.

THE LESSER MAMZRAUTI ALTAR

The altar of the lesser *Mamzrauti* (plate xxv) is practically that portion of the greater altar of the society arranged in October on the floor before the reredos. A centrally placed object, called "mother," consists of a wooden stick, the end of which is cut in the form of a disk to represent the head, the eyes and mouth being indicated by painted dots. The main portion of this stick is somewhat smaller in diameter than the head, and about it winds a screw-like elevation which has given the name "twister" to the fetish.[2]

On each side of the "mother," or "twister," is a flat stick, also ferruled, called the "father," while two additional wooden slats, bearing symbols of rain-clouds, stand one at the side of each "father"; and on one side of each of these are two zigzag

[1] This term corresponds to "*orenda*," or that phase of magic power so well defined by Hewitt, but, unlike it, is used both objectively and subjectively.

[2] In medicinal practices this twister is used to cure face or bodily muscular contortions. Like so many other altar objects, it was formerly made of stone; one of these was found by Mr T. V. Keam at Awatobi.

sticks representing lightning. Black rods varying in length, called "children," form the ends of this row of objects, but at the extreme right there is a flattened stick used as a standard and placed at the kiva hatchway during the day. The prayer-sticks are sometimes put in the ridge of sand before the symbols of children.[1]

The two conical objects forming part of the altar paraphernalia are called *tiponis*, and belong to the two chief priestesses, Saliko and Saha. There are likewise two bundles of black sticks decorated with many feathers, resembling Roman fasces.[2] Other objects on the floor are a rattle consisting of a curved stick to the end of which are attached conus shells, two feathered implements used in sprinkling the altar, two bone whistles, a tray of sacred meal, and a stick with a bunch of hawk-feathers tied at one end.

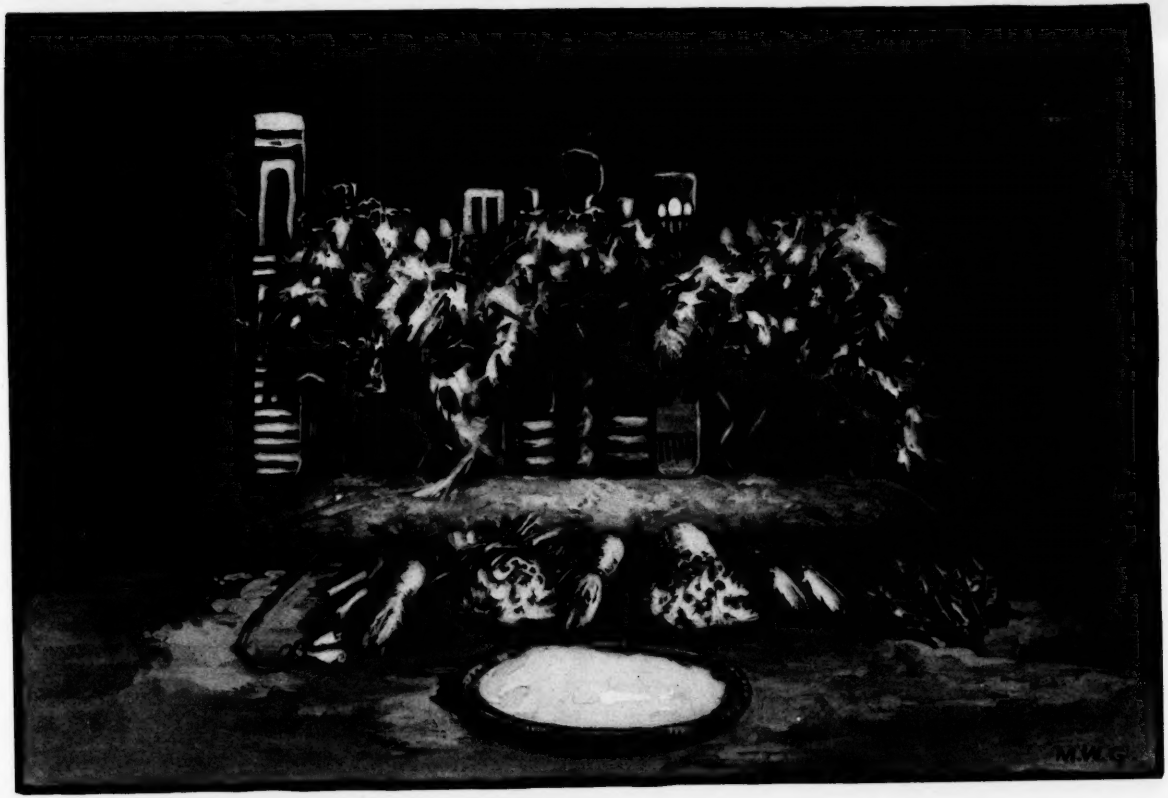
PUBLIC DANCE OF THE LESSER MAMZRAUTI

The public dance began at sunrise and was continued at intervals throughout the day, closing with a feast. The female actors, called *Palahiko-manas*,[3] in the first performance of the day were personated by the two chieftainesses, followed at intervals (which were occupied in dressing) by other members of the society. In the late afternoon performances, during which most of the author's notes were made, four girls, accompanied by a man personating *Palahik-tiyo*, appeared. The dancers were accompanied by a chorus, one of whom beat a drum. (See plate XXIV.)

[1] There is no reredos as in the October *Marau* altar at Walpi. In this respect the lesser altar at Walpi resembles the model of the Oraibi *Marau* altar assembled by Mr Voth in the Field Columbian Museum; in other details the two differ widely. The Middle Mesa *Marau* altars have not been described.

[2] These bundles in some other ceremonies are said to represent the Spider-woman, or Earth-goddess; more accurately speaking, the bundle contains the symbolic fetishes of this personage, the sticks being offerings tied about them.

[3] As has elsewhere been shown, the same personation in different pueblos, or even in the same dance, has different names. *Palahiko-mana* is often called *Calako-mana*. *Tuñwup-katcina*, the child-flogger at Walpi, is called *Ho-katcina* at Oraibi, judging from Mr Voth's recent article on the *Powamu* of that pueblo.



THE LESSER MAMZRAUTI ALTAR

MARAU-MANA OR PALAHIKO-MANA

The most striking object in the apparel of *Palahiko-mana* is a wooden head-dress of horseshoe shape, with radiating appendages also of wood, fitting over the crown of the head where it rests on an annulet made of corn-husks. Its interior and posterior surfaces are flat and painted with concentric bands of different colors, yellow, red, and green predominating. A symbolic ear of corn, made of wood, to each end of which is attached a fragment of sheepskin with the wool died red, hangs over the forehead.

The radiating slats which arise from the horseshoe body of the head-dress vary somewhat in size, consisting of a medial (the largest of all) and seven lateral on each side. All of these have terraced tips, decorated with feathers; one of the tips on each side has curved, anchor-like appendages representing the coiffure peculiar to Hopi maidens and symbolizing squash-blossoms or the fructifying power of nature. The markings on the radiating slats are practically the same on both sides. Perhaps the most problematical objects worn by these girls are small pedunculated wooden cups, of various colors, placed in the corn-husk annulet which supports the horseshoe head-dress. Practically the same objects are found in the Flute-altars of several Hopi pueblos. From a bunch of feathers attached to the back of the head there projects, higher than the rest, one or more eagle tail-feathers.

The face, arms, hands, legs, and feet of the *Palahiko-manas* are colored yellow, and there are red triangular markings on the cheeks. Their long hair hangs loosely down their backs.

For garments the girls wear ceremonial kilts, white embroidered blankets, anklets, a great profusion of silver and shell necklaces, square mosaic ear-pendants, and a great white cotton girdle. They carry two feathers in each hand.

The identity of *Palahiko-mana* and *Calako-mana*, is so close that the author is led to regard them as practically the same

personage[1]; and the ears of corn over their foreheads betray their identity also with the Corn-maid who reappears elsewhere in the Hopi ritual under other names. Thus a comparison with the cultus heroine called the Flute-maid shows the same facial markings and similarities in other symbols, which tend to support the hypothesis, elsewhere expressed, that these cultus heroines of two different clans are identical and must have been brought by related clans to the Hopi from the same part of Arizona. The traditions tell us that *Caliko-mana* was introduced by a clan which once lived on Little Colorado river, south of Tusayan; the logical conclusion, therefore, is that her equivalent, the Flute-maid, had the same origin, and that the Hopi Flute clans came from the same region.[2]

The tradition of the Mamzrauti preserved by the chief, Salako, declares that their idols (among which is the statuette of *Maraumana*, practically representing the same being which the *Palahiko-mana* personates) were obtained from Awatobi, having been brought to Walpi by a woman whose life was spared at the time of the massacre. It was not discovered by the author to which clan this woman belonged, nor whether her ancestors lived in the pueblos on the Little Colorado, but the probabilities, drawn from the similarities between the *Calako-mana* and *Palahiko-mana*, indicate that her ancestors lived in that region, and these support other evidences that some of the Awatobi people came from the same locality. There is another important fact which supports the conclusion, derived from a study of *Calako-mana*, or her equivalent, *Palahiko-mana*, and the Flute-maid, that the Flute clans, of which the latter person is the cultus heroine, came from

[1] The lesser *Mamzrauti* or *Palahiktive* may, from this resemblance, be called the Hopi *Calako*, but it has no resemblance, save in name, to the Zuñi Shalako, also sometimes performed at Sichumovi.

[2] The *Lakone-mana*, cultus heroine worshiped in the festival called *Lalakoñti*, is also the same maid with another name. Tradition declares that her cult was brought to the Hopi by the Rain-cloud clans which once lived in southern Arizona, or the same section whence came *Calako-mana*.

the same section as the clans which brought the former; in other words, that the Flute clans came to the Hopi country from the same region of Arizona as the Rain-cloud clans which brought the *Palahiko-mana* cult.

The distinctive fraternity of the Rain-cloud clans now existing in Walpi is called *Kwakwantû*. The members of this society wear head-dresses with single horns called *cotokinuñwû*, and carry in their hands wooden imitations of the Plumed Serpent. In a way we may say that they personate ancestors with symbolic likenesses to a Sky-god as a Great Serpent. In other words, the Serpent-Sky-god is the cultus hero of the *Kwakwantû*.

Turning now to the cult of the Flute clans, we find the same Serpent-Sky-god, with some variation, a prominent feature in their worship [1] as shown in the name and the symbolism of the main idol of the Oraibi Flute altar. Dissecting the symbolism of this idol, it is found that it has a single horn on the head, which may be homologous with the horn of *Palülükoñ*, the Plumed Serpent. Like all Sky-gods it has bird affinities, indicated by the wings, while the zigzag lines on the legs represent lightning, which is also a Great Serpent symbol. Combining these objective features we find that the idol of the Oraibi Flute altar represents a Bird-Snake-god, and etymology teaches that its name indicates a Sky-god.[2]

MARAU-TIYO OR PALAHIK-TIYO

The male personator who accompanies the female has his body painted with bright pigments and wears a ceremonial kilt, a great embroidered sash, and a cotton girdle. The symbol which more than all else determines his identity is a painted cloth or

[1] The idol is called *Cotokinuñwû*, the Plumed Serpent; it is symbolized by zigzag markings on the legs.

[2] Some of the Hopi say that *Cotokinuñwû* is their equivalent of the God of the white man. A supernatural being with the same objective symbolism reappears again and again in Mexican and Central American mythologies, where it is sometimes called "Creator."

buckskin stretched over a wooden framework and worn on the back. This object, which the author has elsewhere called a "moisture tablet," may be a Sun or a Sky-god symbol, and is worn by the *Kwakwantû*, a priesthood in the New-fire festival, and by one of the Flute priests in their dance. The evidence afforded by the legends that *Marau-tiyo*, the Flute-youth, and the *Kwakwantû* lived in the same locality before going to Walpi, is therefore augmented.

The author is not aware that the Zuñi have any personation comparable with *Palahiko-mana*, but certain traditions of both the Zuñi and the Hopi indicate the same or nearly the same place near St Johns, Arizona, as the home of the *Calako* cultus. This place the Hopi call Winima, and it is possible that it was formerly an inhabited pueblo from which some clans went to Zuñi and others to the Hopi country. Both have preserved the same name, *Calako*, or *Shalako*, in their respective modern homes, but the Zuñis have retained the festival in its more original form.[1] The Hopi *Calako-mana* is the best-preserved personage surviving in it.

Winter Sun Prayer-stick Making

INTRODUCTION

One of the most venerated societies of priests in both Walpi and Hano is called the Sun priesthood, which has a summer and a winter meeting in both pueblos. The summer meeting has been elsewhere described. The author attended the winter meeting of the Walpi Sun-priests for the first time on December 17, 1899, and here records what then occurred in order to fill a few gaps in our knowledge of this ceremony.

The general character of the ceremony of the Sun-priests, its duration, and the place in which the celebrants assemble, are the same in both summer and winter observances; but in the summer

[1] The so-called Zuñi (*Sio-*) *Calako* is sometimes performed in Sichumovi, but it was introduced there directly from Zuñi in the last generation.

performance the offerings to the sun are deposited in a shrine called the "east sun-house," representing the summer solstice, while those of the winter ceremony are deposited in a shrine west of the pueblo, representing the "winter sun-house" or winter solstice. In both instances the offerings are practically identical in form and significance.

The participants were Kwatcakwa (chief), Supela, Tcübi, Anawita, Sakwistiwa, Tcasra, and Tcoshoniwû, all members of the *Patki* or Rain-cloud clan. This meeting occurred in the room near the *Moñ-kiva*, in the lowest story of the ancestral *Patki* building. This chamber, which is without windows and doors, being entered from the roof, is set apart for this meeting like the old *Pakab* house when the warriors gather for the *Momtcita*. In a way we may liken these rooms to kivas, but in their use as ceremonial chambers they probably antedated the latter. In early times, while secret rites were still limited to the clan, such rooms were amply sufficient for all purposes; but when the sacerdotal fraternity composed of many clans was formed, these clan kivas were not large enough to accommodate the members, consequently large rooms were constructed. These special rooms are the society kivas, which in Walpi and other Hopi pueblos are necessarily so placed and constructed as to be separated from the clan dwelling by reason of the size and composite nature of the societies which gather in them.

In most of the Arizona ruins thus far opened, no society kivas have yet been found, probably because clan kivas or rooms owned by different clans were ample for the clan festivals. In early times there were probably no society kivas, because no large priesthoods existed, and it was only after the pueblos became large and composite that these rooms were built. The Flute society, the Sun-priests, and the Warriors of Walpi still hold secret rites in what may be called clan kivas or clan rooms, while the ceremonies of the other societies are conducted in society kivas.

The secret rites of the Sun-priests last but a single day; they

consist mainly of the manufacture of prayer-bearers or prayer-sticks, of ceremonial smoking, songs, and verbal prayers. The following kinds of prayer-bearers were made: 1, Thirteen prayer sticks, called sun *pahos;* 2, One artificial eagle egg; 3, Two clay images of quadrupeds; 4, Two warrior prayer-sticks; 5, One prayer object in the form of an ear of corn. The manufacture of these objects occupies the whole morning, and when finished they are arranged in order in a basket-tray placed in a corner of the room, the pointed ends being toward its center. A few words regarding these prayer-offerings may be instructive.

The sun prayer-sticks, which are the most numerous, differ from each other in but one essential feature. All are double, or made of two sticks tied together; but while some of these have terminal facets cut on one or both, others are without them. Seven prayer-sticks have two facets with painted dots to represent eyes and mouth; six have a facet on one stick only, and one has no facet on either of the two sticks. The faceted wand on a double prayer-stick is ordinarily called the female, the non-faceted, the male. The bodies of the stick are painted green, the facet yellow, and the facial dots black. All are pointed at one end and are of the length of the middle finger.

The two shafts are bound together by a cotton string in which is inserted a corn-husk packet of meal; from this extends a string, to the end of which a feather is attached. The binding string also holds in place a turkey-feather and two herbs — appendages which are not characteristic of the sun *pahos*, but occur in several other kinds of prayer-emblems. Inserted between the cotton string and the shafts of the prayer-sticks is a small twig, crooked at one end, from which hangs a feather, while another string connects it with the shaft. This crook is peculiar to the prayer-stick of the Sun-priests and is believed by the author to be a diminutive representation of an implement akin to a throwing-stick,[1] the

[1] Cushing has pointed out the same likeness in his article on "The Arrow," *American Anthropologist*, vol. VIII, 1895, p. 307.

object of which is to increase the velocity of a shaft thrown into the air. Its prototype is repeatedly used in Hopi rites, and it occurs among Hopi ceremonial paraphernalia always apparently with the same or nearly the same meaning. One of the most instructive prayer objects made by the Sun-priests is oval in form, painted white, and with a string about its lesser circumference to which a feather is attached. This object represents an eagle's egg and is placed in a cairn, called the Eagle-shrine, as a prayer for the increase of eagles. There were also two rude clay imitations of quadrupeds — sheep or other animals. At the close of the rites they were placed in sheep corrals and elsewhere for the increase of the flocks.

The warrior prayer-stick is the same as that made in the War festivals, and is probably an offering to the War-gods to protect the farms.

An object representing an ear of corn well illustrates the Hopi mode of prayer by signatures. It is made of wood, elongated in form, with a corn-husk packet to which a feather is tied. One pole is marked with parallel lines, and the surface is divided into small, black, rectangular figures, each with a central dot, representing seeds. This object is a prayer symbol for corn.

SONGS AND PRAYERS

The songs that are sung and the prayers that are uttered over the objects are supposed to impart to them the magic power of the priests; for when a Hopi breathes on sacred meal and sprinkles his idols with it, or, for instance, throws it toward the sun, he expresses his wish and makes the meal a bearer of his magic power. The meal thus becomes a prayer-bearer, its efficacy being enhanced by objective symbols or signs; hence a packet of meal tied to an artificial ear of corn becomes more efficacious than meal alone.

The consecration of the prayer objects, by which is meant the imparting to them of the magic or wish of their maker, is

accomplished by songs, prayers, and ceremonial smoking, each mode of transfer being supposed to vivify the objective symbols and to endow them with the magic power of the priests.

From the flat basket containing the above prayer objects, placed on a pile of sand in a corner of the room, there is drawn across the floor to the ladder a trail of meal and corn-pollen. This line is a symbolic road along which the power of the prayer emblems is supposed to pass. Just in front of this basket, on the meal line, is placed the stone fetish of a frog, over which is stretched a cotton string with an attached feather. The frog is the only object, besides the prayer emblems, used by the Sun-priests,[1] and is highly reverenced by them as efficacious in bringing rain. After this simple arrangement of basket, symbolic trail, and frog fetish, the Sun-priests approach the simple altar and begin their ceremonial smoke, songs, and verbal prayers.

Smoking, singing, and praying impart to the prayer-bearers the will of the worshipers. In the first method the pipe was lighted by Tcübi, the Pipe-chief, who passed it to Kwatcakwa, addressing him as his father and receiving in reply the corresponding term of relationship. The chief then puffed smoke on the objects and toward the four solstitial points.[2] The other men smoked in sequence from the same pipe, receiving it with an exchange of terms of relationship. These have been so often mentioned in the author's writings that they need not be repeated here.

Verbal prayers follow the smoke prayer. Each man, preceded by the chief, took a handful of meal, breathed his prayer on it, and sprinkled the prayer-objects in the basket-tray. Song prayers follow those verbally delivered; but the intent is the same, only the manner of directing the power being changed.

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[1] Note the association of a frog fetish with Sun ceremonies.

[2] The smoke carries the prayer from the chief; it transfers the wish of the smoker to the object; moreover, it is a cloud and is symbolically efficacious in bringing that which clouds produce — rain.

After the songs, in reverse order, come verbal prayers and smoking, the rites closing by the chief passing from priest to priest and daubing the cheek of each with meal.

Directly following the event last mentioned occurs a purification rite which, in simple or elaborate form, takes place in most Hopi ceremonies. It is regarded by the priests as necessary to avert harm from the individual, but its meaning is possibly better expressed by regarding it as a protection from evil magic. The object used in this rite is ashes, the product of fire, the power of which is always regarded as potent and mysterious. Supela passes to each person a handful of ashes, and then, standing in the middle of the room, sprinkles a little of the same substance along the mid-rib of a feather. Each priest holds a pinch of ashes in his closed hand as Supela sings a low song and beats time with the feather to which he imparts a quivering movement. He then walks around the room, drawing the feather across the feet of one priest after another, who in turn makes passes over his head in a horizontal circuit and throws the pinch of ashes toward the hatchway. Supela again passes around the room, touching with the feather the knees, loins, chest, and head of each priest, who in turn makes circular passes over his head with his left hand, and throws a pinch of ashes toward the entrance to the room. Supela takes new pinches of ashes for each circuit, and the ashes each priest has after the final circuit is thrown toward the hatchway. Immediately after this purification rite, wives and sisters of the assembled priests appear at the entrance to the room and pass food to those below. Each woman brings with the food a handful of prayer-meal, which is given to Supela, who sprinkles it on the prayer-emblems. A feast closes the celebration, as is universally the case in Hopi festivals.

The simple ceremony herein described is repeated twice annually, once near the summer and again at the winter solstice. It is an instructive example of sun worship, and as such there are one or two related facts which may be emphasized. All the Sun-

priests are members of a group of clans which in ancient times lived in a land called Palatkwabi. The route of migration of these clans is so well known that there is no doubt of their southern affiliation, and it may justly be concluded that the cultus here described came from a southern country.

The introduction of the fetish of a frog is significant, and is the only instance known to the author in which an image of this creature is used at Walpi, although pictures of the frog are constantly found on altars and ceremonial paraphernalia. It is regarded by the author as the symbol of the Sky-god or of the Rain-god, so that we may interpret it as connected with sun worship, so far as that which it symbolized is concerned.

This seems an appropriate place to refer to the frog images made of shells encrusted with turquoise, a few specimens of which have been found in ruins of the Southwest.[1] Although these mosaics may have been worn on the breast in ceremonial personations, it is hardly probable that they were put to purely secular uses, and they therefore may have been used by the ancient people of Arizona in somewhat the same way as the frog idol above described.

The Buffalo-dance (Mucaiasti)

Introduction

There is no evidence known to the author that the bison, or American buffalo, ranged in historic times as far west as the arid region of Arizona in which the Hopi pueblos are now situated, but there is abundant proof that the ancestors of some of these Indians knew this ruminant, and obtained its hide in trade for the manufacture of various articles of apparel or ceremony. It would appear improbable that a people with such a limited personal knowledge of the animal as the Hopi must have had, could have developed a bison cult; but the fact that the Hopi are

[1] One of these, from Chaves Pass, is figured by the author in the *Smithsonian Report* for 1897.

THE BUFFALO DANCE

a composite people, partly consisting of descendants of those who once lived near where these animals were hunted, gives more probability to the existence of such a cult among them.

The clans of Tiwa, Tano, and Tewa extraction which joined the Hopi at the close of the seventeenth and in the beginning of the eighteenth century, no doubt had a form of the buffalo cult which had been practised in their New Mexican settlements. The valley of the Pecos, within the memory of many living Pueblo Indians, contained herds of buffalo, and men of these three pueblo groups are known to have hunted the animal in that region. The Buffalo-dance, no doubt, had a prominent place in their ceremonials and was carried with them when they moved westward to the Hopi country. This explains the fact that we still find a survival of this dance at Hano, the Tewa pueblo on the East Mesa.

It was the good fortune of the author to witness the Buffalo-dance at Walpi in March, 1900, and as this performance among the Hopi has never been described, a few notes on this little-known ceremony will be presented.[1] It is said by all the Hopi, and by the few white men who witnessed it years ago, that the Buffalo-dance is on the decline, the presentations given in late years lacking the elaborate character of earlier performances. This is ample reason why that which now survives should be recorded before it completely disappears.

The Buffalo-dance is not accompanied by secret rites, and lasts but a single day. The two principal personators, known as the Buffalo-youth and the Buffalo-maid, dance at intervals during the day, while a chorus of singers, one of whom beats a wooden

[1] Personations of the bison by masked men in kivas or in secular performances are mentioned in the author's account of the theatrical dramatization at Walpi in the *Proceedings of the Washington Academy of Sciences*, vol. I. From what the author has learned of the Sun-dance of the "Plains Indians," through those who have observed it, he is inclined to regard it as primarily a ceremony the object of which was to increase the buffalo herds, with initiation features. Among the Hopi it is merely a survival, the action having outlived the meaning.

drum, furnish the necessary accompaniment. In former times, especially at Hano, where this dance was celebrated with considerably more fervor and ceremonial detail than at present, the advent of the personators was dramatized in a more realistic way. The Buffalo-youth and the Buffalo-maid donned their costumes far out in the plain, and the people went down the trails to meet and to escort them to the pueblo. There were also accompanying secret rites, but of late these have been abandoned.

BUFFALO-MAIDS AND -YOUTHS

Two young men and two girls participated in the Buffalo-dance witnessed at Walpi in 1900. They dressed in the kivas and did not leave the mesa. Their apparel and symbolism were as follows: the distinctive facial markings of the maids were two parallel lines on each cheek; each wore a sun-shield on her back[1] and carried a notched stick, called a "sun-ladder," in her hand. Ceremonial blankets completed their costume.

The youths wore wigs of sheepskin (formerly these were of buffalo skin), stained black, the pelts hanging down their backs. These wigs had artificial buffalo-horns, and embroidered bands extended across their foreheads. Each carried a zigzag stick, representing lightning, in his hands. Ceremonial kilts and sashes completed the costume of the youths.

The dance had a lively movement as compared with the solemn, rhythmic step of the Hopi *katcinas*, that of the male personator suggesting the movement of the buffalo. The Buffalo-youth pranced about the Buffalo-maid, now and then running the length of the plaza and pretending to spear the earth with his notched or zigzag stick. This action possibly symbolized the fertilization of the earth; indeed, one is tempted to suppose that it was once a signature prayer to make the earth yield buffaloes,

[1] Hopi tradition relates that the Sun brought this cult to the East Mesa, but comparative studies show that the connection between the buffalo cult and the sun cult was deeper than the Hopi now appreciate.

but if this were actually the case, the Hopi have lost all knowledge of its primal significance. The movements of the Buffalo-maids were confined to a slow turning of the body, raising on tiptoe and swaying back and forth. Each maid held in each hand, extended before her, a notched stick called a "sun-ladder," elsewhere described.[1]

The Children's Dance

The tendency of children to imitate their elders is universal, and to show that Hopi children are no exception, a few lines will be devoted to a juvenile *Katcina* dance witnessed by the author at Walpi on January 16th, 1900. This dance is called *Wahikwinema*, or "Go-throwing dance," because at its close one of the boys who participates throws piñon-nuts to the assembled spectators. About fifteen boys and girls, none more than fifteen years of age, took part, each dressed in a ceremonial kilt and a blanket; their bodies were painted, and feathers were tied in their hair. No masks were worn, and the boys and girls were dressed by their elders in one of the kivas. Each of the little performers carried a rattle, and they danced and sang as do their elders in the regular ceremonies. Some of the children were so small that they were carried into the kivas in the arms of their fathers to prevent them from slipping or falling from the ladders.

At the close of the dance the children threw to the spectators small packets of corn-mush (*somipiki*) and piñon-nuts. A chorus of spectators, mostly adults, sang as the children danced, and one of their number beat a drum. This dance is not a sacred one, but a secular imitation encouraged by the parents as child's play. One or more of the participants may have had a knowledge of the fact that real *katcinas* are simply representations of gods, but the majority believed, as do all Hopi children before the ceremonial flogging by which they are initiated, that the

[1] *American Anthropologist*, April, 1899.

masked beings which from time to time perform in the public plazas are as truly realities as is "Santa Claus" to some of our own children.

Conclusion

While this brief notice of the children's dance closes this article, it by no means exhausts the subject of Hopi minor festivals. It only leads us to the threshold of secular festivals and customs, to consider which would unduly enlarge the present paper. Nothing has been recorded of a pretty little custom at the time of wood-gathering, when the men, laden with firewood, return to the pueblos and are met by the girls of the village; nor of the rabbit-hunts and their attendant festivities. The planting and "harvest home" festivals still await description, as do the salt gathering, the clearing out of the springs, the games in the plaza when one pueblo plays against another, or in the kivas when women contest with the men, as in the cup game, *cocotukwi*. Then there are the strictly family festivals, such as child "christening," when the baby is dedicated to the sun,[1] puberty and marriage festivities, and mortuary rites which differ in the several villages. The house-building "bees" by the clan should not be overlooked, and the primitive markets are well worth consideration in a complete description of Hopi minor festivals.

The subject has many ramifications, to follow which would introduce numerous widely different customs, among which are the harvest exercises on the farms, when maize is roasted in great pits; rites in the kivas at the time of epidemics for the purpose of averting sickness; and ceremonies about the body of a Hopi killed by lightning. All of these and many others have changed more or less in the ten years since the author began his studies of these interesting people. Hopi aboriginal life is fast fading into the past and the time for gathering ethnological data is limited.

[1] See J. G. Owens, in *A Journal of American Ethnology and Archæology*, vol. II.

The author, in closing, would suggest that a record of the variations of the same Hopi festival in different pueblos is important. The more detailed the descriptions are made, the greater the differences of the same ceremony are found to be. These variations are due in part to syncopation, in a much greater degree to modification and addition, but most of all to diversity in the clan organization and clan predominance in the priesthoods or among the participants. A great festival is a mosaic added to by incoming clans or abbreviated by the death of others. It is continually changing as the sociology of the pueblo changes, and possibly a knowledge of these variations may be of value in tracing the evolution of the ritual.

While the great Hopi festivals in the different pueblos differ in the form, number, and detail of their altars, in the number and intent of their personators, and in many other particulars, they have certain elements in common. The author believes these local modifications, like the composition of the pueblos themselves, are comparatively modern. The population of each pueblo is formed of clans united in different proportions; each great festival is a similar union of rites in which those of one or another clan predominate. Some of these rites can be definitely assigned to the clan which brought them, others cannot. In the former case, aided by tradition, we can trace the rites to certain pueblos, now in ruins, where the clans once lived, but only in a limited way, for the trail becomes obscure a few hundred miles from the present Hopi villages.

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BOOK REVIEWS

Archæological History of Ohio. The Mound Builders and Later Indians. By GERARD FOWKE. Columbus, Ohio. Published by the Ohio State Archæological and Historical Society, 1902. 8°, xvi, 760 pp., ills.

The Ohio valley, particularly that part of it lying within the state of Ohio, has been the subject of many books, articles, and reports; but no work up to the present is so comprehensive as that written by Mr Gerard Fowke and now issued by the Ohio State Archæological and Historical Society.

In all of his writings Mr Fowke has displayed more or less aggressiveness toward others who have been engaged in the same field of research, and his vigorous denunciation of all theories or observations in which he himself does not concur may be admired even by those who do not agree with him. Early writers conveyed the impression that a high degree of culture prevailed in ancient times throughout the mound region; but in this they were manifestly wrong, as has been shown by the results of recent explorations by trained students. Naturally, when such a reaction occurs, particularly in a science so new as American archeology, the tendency is to go to the other extreme. Mr Fowke is not only a student of American archeology, but a practical field-worker, and when he confines himself to his field observations, he does not take the view that the earthworks of the Ohio valley were built after the discovery of America. It is true he does not assert that the Ohio mounds are very ancient, but he is explicit in stating that no European objects have been found in them. His conclusions (pp. 469–472) are arbitrary, to say the least, for in presenting them he disregards the testimony of the Hopewell, Turner, Mound City, Liberty, and other "high culture" groups.

Those who have closely studied Ohio archeology may not clearly understand the statements made on page 471:

"Any statement, drawing, or description of remains which attempts to show that the Ohio Mound Builders were a race essentially different from, or of a higher grade than all other native tribes of the United States, or even of the Ohio valley, is not justified by any evidence so far discovered.

"And the contrary assertion that they were the ancestors of any tribes living north of the Ohio river, of whom historical or traditional knowledge has been handed down to us, is equally without proof.

"We simply do not know who they were.

"But we have abundant reason for asserting that in no particular were they superior to, or in advance of, many of the known Indian tribes."

These broad assertions are deliberately made. In the first he uses the word "race," and in the second "tribe." He evidently recites a favorite expression used by early writers when he employs the former term, for no recent student of the subject believes that the Mound-builders were a separate race of people. Racial and tribal differences need no comment here. As to the first sentence we will all agree; but as Mr Fowke uses the terms "tribe" and "race" interchangeably throughout his treatise, he may mean "no tribe essentially different," etc., in which case I would take positive grounds against his assertion. The local culture of the lower Scioto was not only higher than it was elsewhere in the state, but it was more highly developed than anywhere else in the United States, save one locality. Why should the field testimony be cast aside? The second sentence is substantiated by field explorations; but in the last we may take exceptions to his claim that "in no particular were they superior to," etc. The Pueblo peoples may show a higher culture grade; other tribes of the United States did not, for, if they did, why did they not construct enclosures and forts and other remains comparable with those of Ohio? Had Mr Fowke been present during the Hopewell explorations and observed the conditions under which so many strange objects made of foreign substances were found, his fairness when considering field testimony alone would have led him to form a different conclusion. But the author unfortunately casts aside all evidence which he cannot personally see and handle. I do not say that a personal inspection would have resulted in his entire conversion, but I do maintain that he could not see those deposits and interments, and then express the belief that the people who made them were no higher in culture than the Diggers, the Miamis, or the Sioux. In his lectures and publications, Professor Putnam, our most competent observer on Ohio, takes the ground that the lower Scioto was occupied by a tribe ranking higher than the tribes of the surrounding region.

Eighty or ninety pages of Mr Fowke's book are devoted to demolishing theories that were published many years ago. Very few of these early observers are quoted at the present time, and many of them are practically forgotten; therefore it is difficult to see why the author

should have resurrected their fallacies and have held them up to ridicule and contempt. Along with the obsolete authors he condemns real authorities. Few investigators escape criticism. Archeologists and historians will be interested in the book, and in order to read both sides they may consult the early writers, but laymen would not have thought or known of these old and exploded theories had they not been given the space, which would have been devoted to better purpose had the author quoted more extendedly from the reports of such field-workers as Putnam, Holmes, Metz, Mills, and himself.

Mr W. C. Mills' important investigations of the last few years are almost entirely omitted. Squier and Davis' book is more frequently quoted than any other, and yet Mr Fowke speaks disparagingly of the observations of these pioneers in American archeology. They made mistakes, and many of their measurements are imperfect, but other of their observations and surveys are not only accurate, but they have not been approached in point of excellence by any recent work. In the matter of illustrations, Mr Fowke's plans and drawings of various works in Ohio are not to be compared with the splendid maps and plans given us by Squier and Davis more than half a century ago. Indeed, it is unfortunate that the author has marred his otherwise generally excellent work by such small, inadequate, and poor illustrations.

In many places Squier and Davis are cited because their measurements are not in accord with those of the author, who ignores the fact that the diameter of an embankment or of a mound may have been changed from three to thirty feet through continuous cultivation. The Hopewell exploration, for example, showed that the Effigy mound was originally much higher and narrower than even in Atwater's time; today it is nearly one-half larger and broader than it was found to be in 1891. Applying to this Mr Fowke's method of reasoning, the earthwork could never have had the dimensions assigned to it by early observers.

The chapter on Flint Ridge gives an exhaustive account of that famous site. The pages devoted to the manufacture of implements and to the finished products are also, with the exception of a few remarks on ceremonial stones, above criticism. In such descriptions and in field work the author is seen at his best, and the critical student would be unjust did he not accord due praise in these directions. It is only in Mr Fowkê's attitude toward others, in which there is manifest such a spirit of intolerance, that he is open to severe criticism.

In his conclusions (p. 470) the author cautiously suggests that there were several different tribes in Ohio, and that "the cairns and the rude stone heaps point to a third race [tribe?], perhaps nomadic." In these

remarks he virtually admits the presence of different tribes, a fact which, I had thought, had been established by explorations conducted from 1887 to 1896.[1] It is suggested that future excavations may establish a fourth tribe, i. e., the people who buried in gravel hills as distinct from the Shawano trench burials or graves. Now, these tribes may or may not have belonged to the "long and short heads" over which there has been much discussion. On page 133 of the book appear two quotations from Professor Putnam regarding dolichocephalic and brachycephalic forms of crania, indicating the presence of two types of people, not only in Ohio, but in the United States at large. He makes no comment on these apart from saying that the conclusions are interesting; but when the present writer takes up the same subject based on his explorations in many parts of Ohio, Mr Fowke takes him to task in a manner that savors of unfair discrimination.

Again, the author has no patience with students who attempt to give the age of trees by means of their circles of growth. This method of determining age is uncertain, as all know; but there is one tree near Mr Fowke's home which he might have mentioned with propriety. It is the Logan elm, which was a very large tree more than a hundred years ago when John Boggs built his cabin beside it. The tablet upon the site of Boggs' settlement sets forth the fact that near the elm Logan made his famous speech in 1774, but, of course, no one knows how old it was at that time. Mr Fowke does not speak of the many oaks growing upon the earthworks, confining his remarks to trees of rapid growth. In connection with his Chicago elm I may mention one planted by my mother at Xenia, Ohio, just fifty years ago, and which is now about fifty inches in circumference two feet from the ground. Some of the lower Scioto lands were cleared of timber more than a century ago. Atwater, writing of times nearly ninety years past, speaks of the largest oak and other timber growing upon the mounds. An oak three hundred years old in Atwater's days would indicate that the earthwork on which it stood had its origin at or before the discovery of America. Does Mr Fowke hold that no tree of that age grew upon the works?

On page 514 he mentions some "finely carved 'ceremonial stones,' found so abundantly throughout the Ohio valley and known to have been in use among the Indians," etc. I have not been able to find any reference on the part of early travelers to "ceremonial stones" in use among the Ohio Indians. Mr Fowke should have given his authorities,

[1] *Ohio State Arch. and Hist. Soc. Publications*, vol. v, p. 262. *Primitive Man in Ohio*, pp. 79, 112, etc.

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for these objects have caused much discussion and they manifestly merit more than a mention without reference to their specific use. But this is a slip such as any one is likely to make; yet a statement of this sort in the work of another would bring forth some such characteristic expression as "Absurdity can go no further"; "Utterly worthless"; "The imagination balks," etc., for in these Mr Fowke's book abounds. However, one would be prejudiced, indeed, did he not accept honest criticism. In accepting and publishing Cresson's statement that certain nodules, out of which were made the Hopewell discs, were taken from the slate hills along North fork of Paint creek, two miles from the group, I was in error. At that time I had no reason to doubt the correctness of Mr Cresson's observations. Mr Fowke's criticism (p. 629) of my published statement is entirely proper, and I am glad of the opportunity to make the correction.

With his wide field experience and the quantity of material at hand in the Society's museum, Mr Fowke might have drawn comparisons between the mound sites in the different valleys of Ohio. Although he contends that no line should be drawn between surface and mound finds, he would have observed differences, and I am surprised that he should make such a claim. The Shawano and other modern sites have nothing in common with those of prehistoric times. But the space will not afford a full discussion of this important subject of comparison. Mr Fowke's argument that, because the Nez Percés produced Joseph and the Shawanos Tecumseh, these tribes were equal in point of culture to the mound-building tribes, is not well taken, because, for aught we know, the builders of the mounds may have produced at least the equals of either of the celebrated Indians mentioned.

It is unfortunate that the technic of types in Ohio should be neglected, for the field is known better than any other area of similar size. Without theorizing, — which he detests, — Mr Fowke might better have devoted the four-score of pages in which he has made sport of the visionary observers of long ago, to a catalogue and a comparison of types and thus have benefited both the archeologist and the layman.

My criticisms apply to technicalities and to the impression conveyed by the book that prehistoric remains in Ohio indicate nothing of consequence. On the whole the book will do good, for it is a noteworthy contribution to the literature of the archeology of Ohio, and both the author and the Society are to be congratulated.

WARREN K. MOOREHEAD.

Memoirs of Explorations in the Basin of the Mississippi. Volume V. Kakabikansing. By J. V. BROWER, . . . with a contributed section by N. H. WINCHELL, . . . St. Paul, Minn.: 1902. 126 pp., 26 plates, 13 figures, 5 maps, 4°.

Mr Brower, President of the Quivira Historical Society, Saint Paul, Minn., has been for a number of years an enthusiastic student of the Northwest, and has published several memoirs on the history, geography, and archeology of that region. His work is characterized by care and accuracy in the collection of data and by caution in reaching and announcing conclusions. In his researches at Little Falls, Minn., he has been so fortunate as to have associated with him Prof. N. H. Winchell, President of the Geological Society of America, whose well-known attainments as a geologist are supplemented by a mastery of the fundamental problems of American archeology. Mr Warren Upham, Secretary of the Minnesota Historical Society, and Mr J. B. Chaney also took part in the exploration, which was conducted with all possible care under eminently favorable conditions.

The report is presented in four sections. Section I deals with the earlier explorations at Little Falls and the publications relating thereto. Professor Winchell was the first to study the archeological phenomena of the site (1877). He observed the occurrence of objects of flaked quartz at a depth of three or four feet in the sands and gravels, and expressed the opinion that this indicated the presence of man in the region in pre-glacial times. He also reached the conclusion that the mound-builders, since their remains are associated with superficial deposits only, should be identified with the Indian tribes of the present period.

In 1878 Miss Frances E. Babbitt made collections of the shaped quartzes from the surface on the river bank, assigning them to a definite horizon at the base of the glacial deposits, and classifying them, under advice from Professor Putnam and others, as paleolithic.

The third explorer was W. H. Holmes, who, in 1892, made excavations at the point from which Miss Babbitt obtained her collections, and found that the objects were not confined to a particular stratum near the base of the series, but occurred in superficial deposits subject to disturbance from various causes; that they were thus probably the work of tribes known historically.

Later (1899) Mr Oscar H. Hershey explored the site and was led to believe that all the quartz objects were post-glacial and of comparatively recent origin.

Section II describes explorations conducted by the author.[1] The

[1] Invitations to be present during the examinations were extended to a number of

geological history of the Falls locality is reviewed, and the origin and relations of the various deposits concerned in the researches are, as understood at the present time, fully expounded. The archeological work was taken up with a clear understanding of the problems to be considered. Excavations were made at various crucial points, and the published photographic views disclose the character of the formations, as well as the position of the included artifacts. The objects secured have been carefully preserved by Mr Brower in museum jars in his private collection, and illustrations of these (plates 8 to 14) accompany the volume.

Section III is devoted to a study of the full range of local relics and remains. Four classes of these are recognized: (1) those relating to the white population, 1659–1901; (2) those of the Ojibwa occupancy, beginning about 1750; (3) those of the Siouan (mound-builders) occupancy, given a time limit not exceeding two thousand years; and (4) those of glacial time, covering an indefinite period beginning some ten thousand years ago. Distinctions are drawn between the artifacts of the glacial race and those of the mound-building tribes, and a period of indeterminate length is assumed by the author to separate the disappearance of the former people and the appearance of the latter. The conclusions that man was present in the basin of the Mississippi before the ice-sheet of the last glacial epoch had disappeared from the northern part of Minnesota and that his culture was paleolithic, are strenuously enforced.

Section IV is a discussion of "The geology of the Mississippi valley at Little Falls," by N. H. Winchell. We have here a full analysis of the geological conditions beginning in glacial times and extending down to the present, and a discussion of these phenomena in their relations to the history of man. Professor Winchell distinguishes four steps in the glacial geology of Little Falls, and his review of the previous studies of the site and his statement regarding "the result reached by the present investigation" are so clear that they should be quoted in full (page 101):

"(1) *The glacial epoch proper*, when ice covered the country to a great thickness and extended indefinitely southward.

"(2) *The gravel accumulating epoch*, when the ice-margin was at or but little above Little Falls. It was so near, and the slope of the ice was so precipitous, that the materials supplied by the glacier were immediately washed by the glacial waters, the clays being carried away, while the gravels were spread in stratified assortment over the till sheet

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persons, and the present writer regretted most sincerely his inability to take part in the work.

which still underlies them. The ice-margin continued to retreat northward, forming a sheet of stratified gravel and sand all the way, but

"(3) At Little Falls during this retreat was the *extended river and ice-jamming period*, marked by the disturbance of the upper part of the gravels and by the introduction of the quartzes.

"(4) The shrinkage of the river to its present size and the *cutting of the narrow present channel*. This epoch may have lasted 10,000 years and continues to the present.

"The opinion of Miss Babbitt that these chippings are of glacial age was based on faulty observation. She explored the east bank of the river at 'The Notch,' where she reported the finding of a continuous layer of quartz chippings underlying the major part of the glacial gravels. She also failed to notice that they occur on the surface generally at that place. Her errors have been pointed out fully by Prof. W. H. Holmes,[1] and her conclusions are shown to be invalid.

"Mr Warren Upham accepted in the main the work of Miss Babbitt and reached the conclusion that the man who chipped the quartz lived at Little Falls during the accumulation of the undisturbed gravels, i. e., that the ice was still present in the immediate vicinity.[2] He made no distinction between the disturbed and the undisturbed portions of these gravels. It is now known that the chips do not occur in the undisturbed gravels.

"Profs. Putnam and Haynes also followed the descriptions and conclusions of Miss Babbitt, supported as they were by Mr Upham.

"Prof. W. H. Holmes made a thorough examination of the locality, and published his conclusions in April, 1893.[3] The writer accompanied Prof. Holmes and concurred in his findings that the quartzes described at 'The Notch' by Miss Babbitt were not in, nor below any normal glacial deposits, and that they are, on the other hand, found only in surface materials of the general flat on which the city is built. Mr Holmes reached the conclusion that all the chippings are quite late, certainly postglacial, and probably due to the existing Indian tribes. This result may have been reached in part by reason of the existence of quartz chippings immediately associated with other implements in the very surface materials, even in the soil, in groups and pockets, such as can be attributed readily to the present Indian. These are found on the west side of the river, and on the lower terraces all the way to Pike Rapids, and probably extend widely.

"Mr O. H. Hershey first differentiated these modern chippings from those found in the disturbed glacial gravels,[4] and assigned a probable later date to the former. This distinction seems to be important and tends to weaken any conclusion that ascribes all the chippings to one and the same date and origin; and it tends to separate under different causes a lot of facts that have been looked on as attributable to a single cause.

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[1] *American Geologist*, vol. XI, pp. 218–240, April, 1893.

[2] Ibid., vol. XIII, p. 363, 1894.

[3] Ibid., vol. XI, pp. 218–240, 1893.

[4] Ibid., vol. XXIV, pp. 283–294, 1899.

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"The result reached by the present investigation differs from all the foregoing. It recognizes a period of 1,000 or 2,000 years during which the Mississippi flowed as a majestic river past the site of Little Falls, submerging all the plain from two to two and a half miles wide between the outer drift bluffs. This was wholly subsequent to the accumulation of the glacial gravels. It was during this period that these chips were formed, and were introduced, probably by floating and jamming ice and floodwood, into the uppermost three or four feet of those gravels. The quartz and slates must have formed a small projecting knob above the surface of the water, and probably there was annually considerable dry land in the immediate vicinity on which the quartz chippers did their primeval work. Since that time this projecting knob of quartz and slate has been greatly reduced, but it has always formed an interesting obstruction in the current of the river. The overthrow of trees by tornadoes and the action of burrowing animals may have contributed later to the disturbance of these gravels, but they seem to be insufficient to produce the grand effect. The quartzes must have preceded the disturbance, and the only adequate cause of the disturbance is one that acted, as it appears, while the river was swollen by glacial waters coming from far north. That makes the chippers postglacial, but much earlier than the present Indian."

The differentiation of the superficial "disturbed" deposits (No. 3) from the underlying stratified gravels, is a very important result, and Professor Winchell may be right in his interpretation of their age and of the manner in which the flaked quartzes were introduced. Even though this interpretation should be accepted, however, it can hardly be claimed with safety that a quartz-chipping site on a rock and a sandbar in the midst of the wide flood-swept river would contain so full a representation of the culture of the people (if such existed) as to enable us to determine its status. There is, however, nothing inherently improbable in the proposition that the Mississippi valley was inhabited during the period which witnessed dawning civilization of the Nile seven or eight thousand years ago, or in the theory that the culture of this people was so primitive as to be properly called paleolithic.

Section V gives "Conclusions based on ascertained facts and acquired knowledge," by J. V. Brower, who, under eighteen heads, presents a résumé of the geologic and archeologic evidence and the conclusions reached. An Appendix to the volume includes a letter from Professor Winchell, and a brief paper on "Man in the Ice Age," by Mr Warren Upham.

This publication marks a decided step in advance in the study of early man in America. The researches were deliberately planned and the methods employed were thoroughly scientific, and the fortunate combination of talent enlisted must command for the work respect of all students of the history of man. W. H. HOLMES.

Certain Aboriginal Remains of the Northwest Florida Coast. Part I. By CLARENCE B. MOORE. (Reprint from the Journal of the Academy of Natural Sciences of Philadelphia, vol. XI.) Philadelphia: 1901. Pp. 421–497, 2 maps, 121 figures.

This is the ninth publication of the quarto series of works by Mr Moore on the archeology of the Southern states. It is a valuable contribution to knowledge, and, on account of the liberal use of half-tone illustrations, presents an unusually attractive appearance. Mr Moore has conducted these explorations personally, and is himself defraying expenses of field-work and publication. Such are the character and extent of the work accomplished that he may well be accorded first place among archeological explorers within the area of the United States, if not, indeed, in all America. His field has been limited to a few of the Southern states, but his researches are so planned that the observations of one area properly connect with those of the adjoining areas, making the work a unit. It is to be hoped that these investigations will be continued to the westward along the Gulf coast until Mexico is reached and much needed light is thrown on the relations of the culture of the mound-builders of the great Mississippi valley region to that of the pyramid-temple builders of central Mexico.

This particular volume describes explorations at various points between Perdido bay on the west and the eastern end of Choctawhatchee bay on the east, a distance of 160 miles. Here the tidewater shores of the bays and inlets are dotted with ancient dwelling sites and mounds. The dwelling sites in some cases show considerable elevations, formed of kitchen refuse and of sand purposely accumulated, and contain implements of stone, shell, and bone, and fragmentary pottery, while the mounds are composed mainly of sand, and, in a majority of cases, were doubtless built for mortuary purposes. One large mound, subrectangular in outline and twelve feet in height, had a flat upper surface and a graded way leading to it, indicating that it had served as a village site. It had been used also as a burial-place.

It is fair to assume that the occupants of these sites belonged, in large part at least, to the Muskhogean stock—perhaps to the Creek nation of historical times. Accounts furnished by Cabeça de Vaca, a prisoner for seven years among the tribes of the region, in the early half of the sixteenth century, indicate a sedentary or semisedentary people of no particular energy or accomplishments, living from hand to mouth, and often in dire need of the necessaries of life.

Excavations in the various middens and mounds yielded numerous stone, shell, and bone implements of usual Southern types, and large

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quantities of pottery. The latter product is characteristic of the region and differs decidedly from the ware of the Lower Mississippi section on the west, the upland country on the north, and the Florida peninsula on the east. Although it has points of close correspondence with the pottery of all these regions, it is decidedly inferior in form and decoration to the pottery of the west. Much of the midden ware appears to be closely related to the culinary pottery of the Appalachian area of Georgia and the Carolinas, being characterized by the peculiar check-stamp finish of the surface.

The illustrations display many of the better pieces to excellent advantage. These are nearly all from graves where, in many cases, they were inverted over human remains, especially over the skull, as if for protection. Only one instance was noted of the inhumation of the bones within a vessel placed upright, a method prevailing in the neighboring Appalachian region. The bones rarely showed marks of fire and were generally dissociated, the skull and a few of the larger bones only occurring in the graves. A striking feature of the mortuary pottery of this region is its mutilation. Nearly all the pieces have been perforated by breaking out the base or piercing it with a sharp implement; the idea, no doubt, was to destroy the mystic life with which the native imagination had imbued the vessel. It is noted also that the custom of modeling rude vessels for use as burial tokens, so common in peninsular Florida, was practised to some extent in this district.

Implements and other objects of iron, glass beads, and a Spanish coin (date between 1521 and 1550), were recovered from the graves and indicate clearly that inhumation and mound-building continued after the coming of the whites.

The pottery consists of vessels of a very wide range of form, though seldom of large size. The platters, especially the scalloped, six-pointed form, are peculiar to the region; the bowl is a leading form and is often handsomely decorated. Pots are not common, and bottles are rare. Effigy forms are met much less frequently than in the Mississippi valley, although it is not uncommon to find vessels of varied shapes embellished with animal features, such as the heads of birds, men, and reptiles in the round, while these and other features are modeled in lower relief or engraved on the body of the vessel. A careful study of the ceramic ware makes it clear that the potter considered the life idea essential to the vessel. The animal forms, while presented in some cases in a somewhat realistic manner, are found to occur in all degrees of modification until purely geometric combina-

tions of lines are reached, and it may readily be believed that all the decorations, howsoever completely conventionalized and elementary, were referred by the potter to some living prototype.

This valuable contribution is supplemented by a second paper on "Certain Aboriginal Remains of the Tombigbee River," pages 498–516, 1 map, 5 figures.

Researches vigorously prosecuted for six weeks in mounds along this river produced meager results in the way of artifacts. The practical absence of pottery is somewhat surprising, as this art was practised almost universally in the south. Bunch burial was common, the bones of numerous individuals having been deposited together without order. W. H. HOLMES.

Premiers essais de sculpture de l'homme préhistorique. Par ISAIË DHARVENT. Rouen: Imprimerie Julien Lecerf, 1902. 35 pp., 9 plates.

The subject of intentionally "retouched" flints and other stones from the *diluvium* has given rise in the last few years to a somewhat acrimonious discussion among archeologists and geologists, the literature of which is constantly increasing. The present well-illustrated pamphlet is a "notice and description of a collection of flints from the lower *diluvium* of northern France, intentionally retouched to make human and animal forms." The author, now a member of the Committee on Prehistoric Monuments in Pas-de-Calais, was led, in 1881, by chance reading of Boucher de Perthes' *Antiquités celtiques et antédiluviennes*, to devote himself to the task of proving the existence of these "pierres-figures" or "pierres-images" of which that master had written. At the Pas-de-Calais Archeological Exposition of 1896, M. Dharvent exhibited a collection of seventy such flints from various localities in that department, which proved of considerable interest, but failed to convince the archeologists *vom Fach*. The question was brought up by M. Thieullen (the author of several papers in the French anthropological journals) at the Congress of 1900, but with little more success. In the case of M. Dharvent there has occurred no such deception on the part of laborers or assistants as is said to have discredited some of Boucher de Perthes' data, so the matter is one of "retouching" or not. The same question was raised at the Congress of 1866 by M. Chatel, who then failed to convince the scholars of the day. Of French archeologists, the following, among others, have refused to recognize the "retouched flints" of MM. Dharvent and Thieullen as anything more than *lusi naturæ*, simple accidents, effects due to cold, heat, frost, etc.:

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Adrien de Mortillet, Salomon Reinach, A. de Marsy, M. Boule, and M. Capitan. Professor Montelius and Sir John Evans have also expressed themselves as unconvinced. The Abbé Breuil and M. Gosselet seem more favorably disposed. If anything could convince one it would be the beautiful figures of the plates accompanying this essay, but, as the "forms" which the mind's eye makes of ink-spots warn us, we cannot doubt but that here also the imagination plays its wonted *rôle*. The figures of monkey-profiles, human faces and skulls, heads of monkeys, sheep, dogs, squirrels, deer, boars, frogs, etc., are easy to see because M. Dharvent tells us where to look for them,— they are like some "puzzle-pictures," which, once seen, are hard to get out of the mind. M. Dharvent admits that he has no better arguments to support his position than had Boucher de Perthes, but considers such ocular evidence as that presented by the simian profile of plate IX to be incontrovertible.

The theory of "pierres à retouches" has also developed in England. In two letters to the London *Times* (Sept. 3, 7, 1901), the Hon. Auberon Herbert writes of his discovery, in the gravel beds of the Avon valley in South Hampshire, of a mass of worked stones, the greater number of which "are representations of the tokens of the tribes," — suns, moons, animals, birds, fishes, mountains, parts of the human body, etc. Here we have, if we believe the Honorable Herbert, "a new volume of *Totemism* suddenly placed in our hands." In *Man* (London, 1901, 149–151), Prof. A. C. Haddon rightly observes that "whatever the stones may be, they can never be proved to be totems or representations of totems." There is the strongest reason for refusing even to believe them artifacts. It is worth recalling that Boucher de Perthes (and Chatel after him) found "symbolic signs" and a "hieroglyphic language" of antediluvian man in the shapes of men and animals he saw in the stones of the river-drift. So the theory of "totemism" is hardly new. The reviewer cannot escape the conclusion that, on evidence now in hand, the "retouched stones" represent an interesting chapter in "the scientific uses of the imagination." The mind of twentieth century man, not the hand of prehistoric man's precursor, has done this. ALEXANDER F. CHAMBERLAIN.

The Huntington California Expedition. Maidu Myths. By ROLAND B. DIXON. (Bulletin of the American Museum of Natural History, vol. XVII, part II, pp. 33–118.) New York: June 30, 1902.

Lying between the cultural area of the Northwest coast and that of the Pueblos, flanked on the east by the widespread Shoshoni tribes

of the Basin, and divided linguistically, so far as we now know, into more than fifteen distinct stocks, the Indians of California present many points of peculiar interest. Unfortunately this field has hitherto not received the attention it deserves, and it forms a serious hiatus in our knowledge of North American peoples. Now, however, the gap bids fair to be soon filled. We have Curtin's *Creation Myths of Primitive America*, drawn from the Yana and Wintun tribes, and these twenty-two Maidu tales are another excellent contribution to the same end.

The first six pages of the bulletin give an interesting introduction to the tribe. On their location and subdivisions Dr Dixon says:

"The Maidu is spoken in three dialects, which may be designated as the northeastern, the northwestern, and the southern. The first of these is spoken by that portion of the stock living in the chain of broad, flat-floored valleys in the higher Sierra, beginning with Big Meadows in the north, and ending with Sierra Valley in the south. The second group occupies all the western slope of the Sierras and the Sacramento Valley north of the Yuba River. The third group comprises all the remainder, and, roughly speaking, is synonymous with the Nishinam of Powers. The various groups came into contact with different stocks in varying degree, and all show the influence of such contact. The northeastern group came into close contact with their northern neighbors, the Achomā'wi, or Pit River Indians, and with the Piutes who border them on the east. The northwestern group were associated with the Wintun of the west side of the Sacramento River, and with the Yana who occupied the east side of the river, above Deer Creek. The southern section of the Maidu stock were in contact with the Washoes, with peoples of the so-called Moquelumnan stock, and with the Wintuns. The contact of the sections of the stock with different neighbors led to noticeable differences in culture, myth, and dialect; and these tendencies toward varying cultures were in many cases re-enforced by considerable differences of environment."

The more permanent dwellings of these people evidently resembled the semisubterranean houses of the interior Indians of Washington and British Columbia. "In their social organization the Maidu showed apparently a complete lack of any clan organization or totemic grouping. . . . The chief ceremonials in the religion of the Maidu were the initiatory ceremonies for the boys or young men at or about the age of puberty, and the great annual 'burning' for the dead." It is interesting to learn that all boys do not go through the first of these ceremonies, but only such as are annually chosen by the old men. "The 'burning' . . . was not that of the body of the dead, but of offerings of various sorts,—a common ceremonial for the dead in which the whole village or several villages joined."

Outside of Curtin's work, above cited, so few studies have been

made of the surrounding tribes that, as Dr Dixon points out, a satisfactory comparative discussion of the Maidu myths is impossible, but he has indicated the closest analogies with those of the nearest tribes that have been investigated. In the "Creation Myth," which strikes one as quite philosophical, Turtle procures earth from the bottom of the primeval ocean in the same way as is related by our eastern Indians. Other stories resemble the "Transformer" tales of Oregon, Washington, and British Columbia. The story of the one-legged man (*Huptoli*) recalls a similar Haida conception. As throughout the California area, Coyote takes the place of Raven, Bluejay, Spider, etc., as "trickster."

The "Abstracts" with which this bulletin closes should be of the greatest convenience to mythologists in future comparative studies. It is to be hoped that similar investigations of the California languages will soon follow. JOHN R. SWANTON.

Il precursore dell'uomo (*Pithecanthropus Duboisii*). *Nota riassuntiva del* PROF. ENRICO MORSELLI. Zenova: Fratelli Carlini, 1901. 19 pp.

In this reprint (with annotations) from his *Antropologia Generale*, now in press, Professor Morselli, the distinguished Italian anthropologist, résumés the question of the *Pithecanthropus*. Up to date the majority of French authorities (Manouvrier, Hovelacque, Verneau, Zaborowski, Pettit, Lapouge, *et al.*) with some Germans (Haeckel, Nehring, Schwalbe, Kilser, Jäkel), the Italian Neviani, and the American Marsh agree with Dubois in looking on the *Pithecanthropus* (as determined by the cranium) as a transitional form. The majority of English scientists (Turner, Cunningham, Keith, Lydekker, Keane, Lubbock, Ray-Lankester, *et al.*) are inclined to regard him as man, as do also a number of continental anthropologists (Ranke, R. Martin, Metschie, Topinard, Houzé), German, French, Belgian. The majority of German authorities (Virchow, Waldeyer, von Luschan, Krause, Hamann, Kollmann, Volz, *et al.*) hold the *Pithecanthropus* to be an ape, as do also the Englishman Thomson, the Italians Branco, Giglioli, and Sergi, and the Hollander ten Kate. Of twenty eminent naturalists who up to the fall of 1896 had examined or studied the skull, six attributed it to a man, six to an ape, and eight to a transitional form; the femur was ascribed by thirteen to a man, by six to a transitional form, and by one to an ape; the third molar was judged human by four, simian by six, and to belong to a transitional form by eight; the second molar was assigned to an ape by two and to the transitional form by five. Within the limits expressed above, the divergences of

opinion are very great. Rosemberg allies the *Pithecanthropus* with the *Cebidæ;* Virchow, Flower, and Krause see the remains of a large extinct gibbon; Newton a new species of *Hylobates;* Garson a species of Primate extinct in the Pliocene; Schwalbe a more or less generic form, intermediate between the anthropoids and the Neanderthal race; R. Martin and Lapouge make him a sub-genus below man, of which the second recognizes two species: *P. erectus* (of Java) and *P. Neanderthalensis* (of Europe); Keane makes the *Pithecanthropus* "the first man," and Keith names him *Homo pliocenus;* Houzé styles him *Homo javanensis primigenius*, seeing in the *Pithecanthropus* merely the first Java representative of the human species; Topinard goes some distance toward identifying him with the race of Neanderthal; Ray-Lankester declares the remains to be those of "a microcephalic idiot," in support of which view Mies produces a Dutch pathological cranium of like dimensions. These varieties of opinion doubtless represent different currents of scientific thought and the attitude of the diverse sections of the scientific world toward the general question of human evolution. Professor Morselli himself, while believing that theory and fact warrant us in seeing in the *Pithecanthropus erectus* "the extinct organic form most closely related to our own," recognizes that, since the remains are from the Pliocene, there would be hardly time enough for the transformation into the *Homo Neanderthalensis.* All difficulties are abolished, however, by not considering man as the direct descendant in the same genealogical line from the *Pithecanthropus*, but in making two collateral, scarcely divergent lines,— that of the *Pithecanthropus*, extinct in the Pliocene or Pleistocene, and that of *Homo* continued in the Quaternary human species and varieties. In this case there would be no transformed *Pithecanthropus*, and the immediate "progenitor" of man would remain to be discovered. The *Pithecanthropus* would be neither our father, nor our grandfather, but a far-off cousin and, paleontologically, a "precursor." His chief *rôle* is to show that the same *phylum* which procreated him was well able to originate contemporaneously, or, perhaps, a little before, or a little later, the *Prothomo*, or primitive man. ALEXANDER F. CHAMBERLAIN.

North Queensland Ethnography: Bulletin No. 4. March, 1902. Games, Sports, and Amusements. By WALTER E. ROTH, B. A.; M. R. C. S., etc. The Northern Protector of Aboriginals, Queensland. Brisbane: 1902.

This is a valuable and admirably illustrated collection of the games and amusements of the native Australians. The writer includes, under the general head of games, every sort of amusement from story-telling

(imaginative) to music (exultive). Of the sports described only a very small number would be classified as games in the ordinary acceptation of the term. Among such we find hide-and-seek (the lens of a fish-eye used in hiding), tug-of-war, catch ball, and top-spinning. "Bowl-ball" or "bowl-disc" consists in rolling a wooden ball or disc along a sloping cleared space and discharging small spears (*tchugari*) at it as it rolls,—corresponding with the Amerind game of *chunkee*. Clay balls are spun like tops with the hands by men and women, two or three at a time, the one whose ball spins longest, winning. Other tops are made from gourds with a wooden spindle, and are twirled with the hands; and a buzz or whirligig is fashioned from a similar gourd, with holes on opposite sides through which an endless string is passed.

Seventy-four illustrations of cats' cradles are given, the largest collection known to the reviewer. Some of the figures are extremely complicated, passing through many stages, the hands being supplemented by the mouth and knees; in some one or two, assistants are necessary, and two endless strings are used. Eight local names are given, one, *kapan*, signifying "cut" or "mark,"—the same term adopted for letters and writing when these were taught by the missionaries. Similar figures are met with at distances extremely remote, with and without the same interpretations. The latter refer to animals, plants, the sun, the moon, stars, clouds, lightning, rain, human actions, and utensils. They convey no suggestion of mythologic or religious significance. No games of chance are included, and Mr Roth says it is difficult for these blacks to understand the more civilized custom of producing emulation by a system of awards. With the exceptions noted, the amusements described are imitative and mimetic, and the writer refrains from suggesting any other explanation of their origin and significance. The system of classification, stated to be tentative, would be unsatisfactory for games generally. STEWART CULIN.

Origin and Character of the British People. By NOTTIDGE CHARLES MACNAMARA. London: Smith, Elder, & Co., 1900. 242 pp., 33 figs., 8°.

This charming résumé escaped us when it appeared, and it now comes to our notice *in circuitu*. The *Archiv für Anthropologie* published a translation of Dr Macnamara's Hunterian address on "Prehistoric Man and his Relationship with the Present Population of Western Europe." The illustrations to this paper at once arrested our attention, being good photographic reproductions of the celebrated crania and jaws described in Mortillet's *Le Préhistorique*. Not remembering to have seen so many of them in one publication, we lost no time in hunting up

the author, who called attention to the work here reviewed, in which also the celebrated ancient crania are used as a basis for characterizing the ethnic ingredients in England, Wales, Ireland, and Scotland. The longheaded first man, the Iberian longheads, the Aryan longheads, and the Mongolian brachycephals are described and located. In England the only human inhabitants, until the Mid-neolithic people, were Iberians; then came the Celtic Aryans; following them in the north of England were the men of Turanian blood, and the short, dark, broadskulled Mongolians of central Europe.

This hasty review of all European history is with reference to the last two chapters, for the book has a serious purpose: chapter IV summarizes the racial origin of the British people, and chapter V discusses the development of the intellectual faculties, the physiological characteristics of the several progenitors of the British people, the qualities of each good for nation-building, and, finally, the influence of crowding into cities and other modern conditions on the somatic, mental, and moral characteristics of this ethnic compound.

It does not take long to find out that a work on the races of Europe in which Sergi's name does not appear is strongly pro-Teuton. Indeed, the author asserts that the "unity and integrity of the great Teutonic race, of which the Anglo-Saxon forms so important an offshoot, are of paramount interest, for upon this union the progress and the freedom of the human family depend." He pleads for unity among the whole Teutonic race, and adds pathetically: "If the inhabitants of the Transvaal and the Orange Free States had been thoroughly acquainted with the English language, they would never have been led by interested persons into the terrible conflict in which they are now engaged."

It would be easy to show that in this sympathetic work some of the terms and opinions are not in harmony with those of Ripley, Keane, Deniker, and Sergi, and, perhaps, of the reviewer. Dr Macnamara is not an Aryaphobiac; he thinks that the Eskimo are the descendants of European glacial man, of pure blood, and does not look to North Africa to supply all the ingredients of the British. But he is careful to give his authorities, and he moves right on. The style and bookmaking are beyond criticism. O. T. MASON.

Les industries primitives. Défense des éolithes. Les actions naturelles possibles sont inaptes à produire des effets semblables à la retouche intentionnelle. Par M. A. RUTOT. Bruxelles: Hayez, 1902. 68 pp., 5 figures.

In this pamphlet, reprinted from the *Bulletin de la Société d'Anthropologie de Bruxelles*, M. Rutot, Curator of the Musée Royale

d' Histoire Naturelle de Bruxelles, presents an elaborate argument against the origin, through natural causes, of the flints of the Kent chalk-plateau, Puy Courny, Otta, Saint-Prest, Thenay, etc., the so-called "eoliths," whose human manufacture is not admitted by anthropologists in general. The discussion now centers about "the flints of Thenay." After the investigation of "Tertiary man at Thenay," M. Boule, a representative French anthropologist, considered that the question was closed, since these "eoliths" could not be looked upon as products of primitive human industry. The author takes up in succession the actions of changes of temperature, running water and torrents, sea-waves, settlement of strata, and such "accidental causes" as have been suggested by M. Capitan and others. These M. Rutot considers ineffective, and, expressing his willingness to let the case rest on "such flints only, however perfect they may be in their adaptation to certain uses, as bear evident traces of having served for those purposes," holds that only the workings of the hand of man can explain their shape and condition. In spite of the arguments of M. Rutot, who is a geologist and a careful student of the strata of the Belgian Quaternary and Tertiary, the majority of anthropologists are still prone to regard the "flints of Thenay" as untouched by man.

ALEXANDER F. CHAMBERLAIN.

The Oraibi Powamu Ceremony. By H. R. VOTH. (Field-Columbian Museum, Publication No. 61. Anthropological Series, vol. III, number 2. The Stanley McCormick Hopi Expedition.) Chicago: December, 1901. 97 pp., 37 plates, 8°.

It is a remarkable commentary on the extent of Hopi ceremonials that with the large body of observations on the subject already published, the field has only been scratched. The periodical ceremonies of no single pueblo have been described; beyond that is the comparative study, and the philosophy and interpretation of it all seem to challenge scientific effort. This adds to our respect for the conscientious work of Stephen, Fewkes, Voth, and Dorsey, whose self-denial has much extended our knowledge in this direction.

The present paper shows that admirable work is being done on the ceremonies of Oraibi by Mr Voth, and the *Powamu* is a good sequel to the *Soyal* paper, in which Mr Voth and Dr Dorsey coöperated. The *Powamu* ceremony takes place in February, and has for its purpose the symbolic protection of the fields from all destructive forces and to prepare them for the approaching planting season. The paper gives abundant evidence of the great care with which Mr Voth observed the ceremony in its minutest details. Few persons realize what privation

this means. It is fortunate that the author has recorded a large part of the numerous songs used in the ceremony and that he has been able to essay a translation of them. The illustrations are profuse and excellent.

There are numerous typographical errors, especially in the specific names of plants, but one can excuse minor blemishes in such a generally admirable work. WALTER HOUGH.

Beiträge zur physischen Anthropologie der Nord-Nyassaländer. Anthropologische Ergebnisse der Nyassa- und Kingagebirgs-Expedition der Hermann und Elise geb. Heckmann Wentzel-Stiftung. Mit Unterstützung der Stiftung herausgegeben von DR FRIEDRICH FÜLLEBORN. Berlin: Dietrich Reimer, 1902. With text, 10 tables, 2 autotypes, 1 color scale, 63 photographic plates. Folio. (40 Marks.)

Students of African ethnology who have been delighted in reading Sir Harry Johnston's *British Central Africa* (1897) must follow up that comprehensive survey of a most interesting region by a close study of Doctor Fülleborn's tables and plates. The author lived three years in Nyassaland, in German East Africa, bringing together anthropological materials, making measurements, and taking photos. He must have had magical influence as a physician, for the natives are in his album singly and in companies, showing front, side view, and back. Dr Fülleborn has appreciated to the fullest extent the fact that the fixing of the tribe, the correct measures, and carefully taken photos are of more use to ethnology than any long story he could tell. The reader will put himself in touch with the book by consulting Stanford's *Compendium for Africa*, Vol. II, 1895, pp. 434 and 519. He will at the same time have occasion to mourn over the synonymy of tribes which may be looked for under *A* or *Wa*, or the initial letter, as Awamanganya, Wamanganya, or Manganya. The identification of the individual with the tribe and locality is so carefully done by the author, however, that the confusion in titles is reduced to its lowest terms. The name of the individual is given and the tribe of father and mother. Twenty-three measures of each person are then recorded, and remarks added concerning the color of eyes, hair, and skin, and also regarding other somatic characters not amenable to measurement. Plates 61–64 are devoted to footprints, and in tables viii–x the author discusses their merits by means of a series of measures upon the tracks and upon the feet themselves. In his capacity of physician Dr Fülleborn studied both the prevailing diseases among the Nyassa tribes and the recuperative powers in the case of wounds or maladies.

The sumptuous work is volume VIII of the German East African

series. The text and tables fill thirty pages of printed matter. Each of the 63 plates contains from three to many individuals, so that it is difficult to find where the author has neglected or omitted aught.

O. T. MASON.

The Decorative Art of the Amur Tribes. By BERTHOLD LAUFER. (Publications of the Jesup North Pacific Expedition: Memoirs of the American Museum of Natural History, vol. VII, number I.) New York: 1902. 86 pp., 33 plates, 24 figures, 4°.

This monograph, like all the memoirs of the Jesup North Pacific Expedition, consists of the presentation of entirely new material. Sumptuously illustrated with 250 drawings, it deals with the decorative art, which is practically all the art, of the Gold, Gilyak, Orochon, and other tribes of the Amur region, including the Ainu. More articles of the Gold are described than all the other tribes together. Various arts are represented — carving in relief, ornamental painting, cutting of patterns in birch-bark and paper, and especially embroidering. A great variety of decorated objects are treated of, such as eye-protectors, mittens, spears, baskets, coats, and spoons.

Dr Laufer finds that there has been a strong Chinese influence on the art of the Amur country. Nothing, however, is actually known as to the history of the art-relations of the two regions. Dr Laufer's attitude on this matter is very conservative. He concludes that the art of the Amur tribes is old and deeply rooted, though its basis undeniably rests in China. He holds that the art is not an importation *en masse* from China, but must have had for its *conditio sine qua non* a congeniality in the minds of the two peoples; and that probably Chinese art was gradually absorbed and assimilated by the Amur tribes much as classic art was by the Europeans of the Renaissance.

The bulk of the book consists of a reproduction in illustrations of a large number of specimens of this art, and of an analysis in the text of the ornamental forms so shown. This analysis is carried out with great detail and much accuracy; it is so undeniably thorough as to make tedious reading to any one not specifically interested in problems of ornamentation. This care and thoroughness of analysis, however, give the book its value, for in the interpretation of decorative forms, superficial fancy has such an appalling opportunity that it is the great danger of study of this kind, and the condemning fault of much that has been published. Dr Laufer's analysis, in addition to being marked by caution and good sense, has the inestimable advantage of being founded on that of the natives.

The art of the Amur tribes is essentially ornamental. Its character is, to use the author's expression, formative, not realistic. Chinese art is largely emblematic or symbolic, but of this quality little has been adopted by the Gold. Chinese symbolic patterns are imitated without their symbolism being known. The decorative nature of the art is shown most decisively by the very extensive use of the cock, an animal that plays no part whatever in the mythology or daily life of any of the tribes of the region, and which by some of them has never even been seen; their knowledge of it, and their use of it in art, are due to Chinese influence.

The variety of degrees of conventionalization with which the cock and the fish, the two most important objects of representation in Amur art, are employed, and the way in which these decorative motives are used and abused and adapted to the purposes of decorative art expression, are shown very fully and convincingly in the course of the volume. The difference between the several conventionalizations of the same animal occurring on one object is sometimes very remarkable, and must be set down as one of the salient characteristics of the art. Such fully gradated series of cocks and fishes, as are illustrated, for instance, in figure 1 of plate XXX,—from those that are simply but quite effectively realistic, through others which the author's careful analysis and feeling for the spirit of the art make visible, to those forms, finally, where even his explanations end in a declaration of *non possumus*—are very unusual in primitive art. The cause for these various degrees of conventionalization the author does not find to be a gradual and progressive crystallization of originally realistic non-decorative designs. An influence of technique or material seems out of the question because the different conventionalizations are sometimes found together on the same object; and the author does not even consider this possibility. He wisely attributes this variety of degrees of conventionalization to the creative decorative spirit, or, as he calls it, the "inward impulse to create new [ornamental] forms."

His explanation of the Amur preference for the cock and the fish as decorative motives is at bottom the same: the cock and the fish are peculiarly available and adaptable ornamentally. "These particular animals have an extremely ornamental character because of the great permutations of their graceful motions, and thus lend themselves admirably to the spirit which strives after beauty of form." ("Form," here as elsewhere in the volume, is to be taken as equivalent to "decorative form.")

This explanation, however, does not seem to be sufficient. Another causal factor is required: the nature and spirit of Chinese and

Amur art. The cock and the fish unquestionably were extremely available to this art; but it is too much to say absolutely that their availability is the cause of their prominence in it, for they were, *per se*, equally available to European decorative art, which did not take them up and use them to any extent. An analogous case is the fleur-de-lys. Finding its origin (partial if not ultimate) in heraldic symbolism, its wide ornamental employment in European civilization today is due not so much to any significance as to inherent ornamental availability; but to allege this as the sole cause of its use would be obviously insufficient, for were the character of European art other than it happens to be, the fleur-de-lys would not have been so adaptable and available an ornament. The triskeles and the rosette both have great ornamental possibilities, yet the art of one culture uses only one of them and the art of another only the other to any considerable extent.

A point of general bearing that is brought out in the conclusion, is the essential and necessary connection between conventionalized ornamentation on the one hand, and the forms of nature on the other. A fish "would never have been drawn in spiral form, would never have clung to a spiral, without a foundation of fact." This clinging of the most purely decorative ("formal") arts to a certain amount of realism, is an unexplained and perhaps unexplainable fact, but one that occurs the world over and should never be forgotten in the study of ornamentation.

Two faults of omission can be found with the paper. The internal geographical relations of the art are nowhere made clear, and it is not even stated, except incidentally and incompletely, whether, and to what extent, the technique of the various tribes differs. Another point on which more clearness would have been desirable is as to the precise degree to which the explanations of ornaments that are given belong respectively to the author and to the natives.

Altogether Dr Laufer's volume is a valuable contribution both to the ethnography of the Amur region and to the general study of ornamentation.

A. L. KROEBER.

PERIODICAL LITERATURE

Conducted by Dr ALEXANDER F. CHAMBERLAIN

General

Anthropology at the Glasgow (Sept. 11–18, 1901) meeting of the British Association for the Advancement of Science. (Man, London, 1901, 156–160.) Brief abstracts of papers and discussions.

Azoulay (L.) Photographie d'un cas d'hémimélie. (Bull. et Mém. Soc. d'Anthr. de Paris, 1902, Ve s., III, 51.) Brief account of a case of hemimely taken by "snap-shot."

—— Quelques déformations consonnantiques chez un enfant apprenant l'anglais. (Ibid., 52–54.) Brief account of the sudden softening of certain consonants (*t* before the participial *-ed*), and adding *d* after terminal *-en*, in the speech of a French girl of 9 years who had been learning English for some time,—the peculiarity lasted only a month.

Bastian (A.) Zur noëtischen oder ethnischen Psychologie. (Ethnol. Notizbl., Berlin, 1901, II, 34–90.)

—— Die Berührungspunkte der physischen Psychologie mit der noëtischen, auf dem Bereiche der Ethnologie. (Ibid., III, 140–161.)

—— Zur ethnischen Psychologie. (Ibid., 162–173.) In these three essays Dr Bastian discusses *more suo* the numerous topics connected with "ethnic psychology," the "elemental thoughts" in particular. For those interested in the problems of individual and racial psychology there is much to be gleaned from these pages.

Bloch (A.) Preuves ataviques de la transformation des races. (Bull. et Mém. Soc. d'Anthr. de Paris, 1901, Ve s., II, 618–624.) Treats of "pigment spots," spots on the conjunctiva, lip-coloration, "the white line of the abdomen," coloration of external genital organs, etc., in the Japanese (Baelz) and other yellow peoples, with brief reference to atavisms in the white races (change in course of few months of infants with brownish skin and dark hair to white skin and blond hair,—a phenomenon noted in the department of Vienne; dark coloration of the free edge of the eyelids in certain Arabs). The "pigment spot" is, according to Dr Bloch, "a sort of rudimentary organ, an atavistic stigma." The majority of races whose children have the "blue spots," are descended, he thinks, from "the Negritos, the oldest race of the Far East."

—— De quelques travaux récents qui intéressant l'anthropologie. (Ibid., 636–640.) Extracts from recent contributions to the proceedings of the Société de Biologie, with comments. The works noticed are Weiss "On the functional adaptation of the digestive organs," Gilbert and Herscher "On the diminution of the coloration of blood serum." Also Carmichael and Mandoul's "Blue and green colorations of the skin of vertebrates," and Floresco's "Relation between the liver, the skin, and the hairs from the point of view of pigments and iron," papers presented to the Académie des Sciences.

Bolton (H. C.) The vintner's bush. (J. Amer. Folk-Lore, Boston, 1902, XV, 40–44.) Traces, with references to literature, this tavern-sign from the first century B.C. to the present day. The bush of the taverner, like the three balls of the pawnbroker, the barber-surgeon's poles and basins, etc., was a trade-emblem taking the place of the alphabetical sign-board in times before the existence of popular education.

Bourneville (*Dr*) *et* **Paul-Boncour** (G.) Considérations sur la morphologie crânienne dans ses rapports avec les états pathologiques du cerveau. (Bull. et Mém. Soc. d'Anthr. de Paris, 1902, Ve s., III, 35–49.) Treats, with 4 text-figures, of trigonocephaly, acrocephaly, hypertrophy of the frontal, atrophy of the frontal lobes in two cases of idiocy.

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Calhoun (A. R.) Jacques de Morgan. (Rec. of Past, Washington, 1902, I, 156–159.) Brief biography (with picture) of the French Orientalist, since 1886 at work in western Asia.

Chamberlain (A. F.) Work and rest: Genius and stupidity. (Pop. Sci. Mo., N. Y., 1892, LX, 413–423.) From consideration of the life of animals, the child, woman, genius, criminal, savage, and the race in general, the author seeks to establish the theory that brief periods of work at the highest possible tension alternating with longer periods of rest or changed activity represent the best working conditions; that this is the normal phenomenon of work in so far as it is best and most genially productive and profitable racially and individually.

Delisle (F.) Les macrocéphales. (Bull. et Mém. Soc. d'Anthr. de Paris, 1902, V^e^ s., III, 26–35.) After citing in translation the text of Hippocrates concerning the macrocephali of the Euxine, the author inquires into their disappearance historically and insists upon the importance of the discovery of graves with macrocephalic skulls in central and western Europe.

Dewey (J.) The interpretation of savage mind. (Psych. Rev., N. Y., 1902, IX, 217–230.) According to the author, "the psychical attitudes and traits of the savage are more than stages through which mind has passed, leaving them behind; they are outgrowths which have entered decisively into further evolution, and as such form an integral part of the framework of present mental organization." Dr Dewey then proceeds to discuss the "hunting psychosis," pre-hunting, hunting, and post-hunting situations, etc. No purely hunting race has been dull, apathetic, stupid. Their art is dramatic and mimetic. All expressions of life are filled with the *motif* of the combat or hunting situation. The "hunting structural arrangement of mind" has not been destroyed or left behind, rather its constitutive psycho-physic factors have been set free, "so as to make them available and interesting in all kinds of objective and idealized pursuits,—the hunt for truth, beauty, virtue, wealth and social well-being, and even of heaven and of God."

Ferri (E.) Le cinquième congrès internationale d'anthropologie criminelle. (Rev. Scientif., Paris, 1902, 4^e^ s., XVII, 331–338.) Résumés proceedings of the International Congress of Criminal Anthropology, held at Amsterdam, Sept. 9–14, 1901, with brief account of previous Congresses. Perhaps the most remarkable paper read was that of Sutherland on the results of the deportation of criminals to Australia,— though originally peopled in large part by criminals, Australia has now a low criminality. This is a good example of the *symbiosis of crime*.

Glénard (F.) Le vêtement féminine et l'hygiène. (Ibid., 388–394, 425–434.) A plea for the corset on esthetic, hygienic, and medical grounds. The corset brings out the "undulating lines of woman's body." Corsets to guard the health and not injure the esthetic outlines can be made and used without harm. The essay is illustrated with 16 text-figures.

Haddon (A. C.) Totemism: Notes on two letters published in the *Times* of September 3d and 7th, 1901. (Man, London, 1901, 149–151.) Protests against the description by Hon. A. Herbert of certain stones found in the gravel beds of the Avon valley in South Hampshire, claimed by him to be artificially worked in the forms of suns, moons, reptiles, animals, mountains, parts of the body, etc., as "a new volume of *Totemism* suddenly placed in our hands." Professor Haddon justly refuses to speak of every animal cult as "totemism," and concludes that "whatever the stones may be, they can never be proved to be totems or representations of totems." He suggests that the term *totemism* might be "restricted to practices and beliefs which are undoubtedly similar to those of the Ojibwa cult." (See book review herein, p. 523.)

Jäkel (V.) Die Beziehung der linken Hand zum weiblichen Geschlecht und zur Magie. (Int. Cbl. f. Anthr., Stettin, 1902, VII, 1–6.) Discusses the relation of the left hand to the female sex and to magic, with references to literature. Evidence in point is adduced from the ancient Egyptians, African negroes, peoples of Siberia, gnostics, Semites, Basques, Polynesians, Teutons, etc. The idea of the left

Jäkel—*Continued.*
hand as a female symbol is widespread. Equally current seems to be the relation of the left hand to magic,—it is the "magic hand." The correlation with darkness, ill-luck, etc., is more common than that with sanctity.

Keasbey (L. M.) The differentiation of the human species. (Pop. Sci. Mo., N. Y., 1902, LX, 448–457.) Of the single human species the author considers that there is a fourfold ethnic division corresponding to geographical areas more or less defined. These are: Negro, product of tropical forests; Mongolians, of temperate plains; whites, a derived race (Negro-Mongolian), otherwise the result of their peculiar surroundings; American Indians, derived partly from Arctic Europe and (more) from Arctic Asia, and developed in the environment of the New World *cul-de-sac*. The species in general "was differentiated from the other anthropoids within Indo-Malaysia, where the climate was moist and warm and the surface of the ground covered with a tropical forest growth." Dr Keasbey thinks that "it is natural, therefore, that the blacks should conserve the conspicuous characters of the ape-like ancestor and resemble the human prototype more closely than any other people."

Kobel (O.) Ethnographische Voraussetzungen der Welt-Pädagogik. (Ztschr. f. Philos. u. Pädag., Langensalza, 1902, IX, 34–43.) The author holds that "every people is largely a product of its country." Religious peoples like the Hebrews give their education a religious cast. The Italians are artistic, the English prosaic. Poor people can have but a brief school-life. Thinly peopled countries have not a many-branched system like that of densely populated lands. Agricultural countries develop the public country school. Trade fashions some school systems. International centers or depots have their systems modified by the existence of international intercourse. This paper is hardly what its title would lead one to expect.

Lasch (R.) Ueber Vehrmehrungstendenz bei den Naturvölkern und ihre Gegenwirkungen. (Ztschr. f. Socialw., Berlin, 1902, V, 82–95, 162–169, 345–352.) A general discussion, with bibliographical references, of the "tendency to increase beyond the means of subsistence" among primitive peoples. The Australians, Eskimo and other Hyperboreans, Amerinds of both continents, the lower agriculturist tribes (New Guineans, and other Papuans and Melanesians, Polynesians, Malays, African peoples), etc., are considered. The chief conclusions arrived at are: (1) Among primitive peoples the population does not tend to increase beyond the means of subsistence. (2) The absence of this "tendency" is due to the fact that the potential augmentability is reduced by physiological and biological factors and adapted to the sphere of subsistence. (3) Artificial means of restraint in use lead to a misrelation between population and means of subsistence, the last increasing over the first.

Mac Ritchie (D.) Hints of evolution in tradition. (Rep. Brit. Assoc., Lond., 1901, LXXI, 806–807.) The author considers that "the various European nations still retain a confused memory of intercourse with races that were anthropoid rather than human." The proofs of it lie in the character of the "half-men" of Welsh tradition, the trolls and rises of Scandinavia (also "half-trolls," etc.), the *fenodyree* and *glashtyn* of Manx folklore, the elves, fairies, brownies, goblins, and the like of the British isles, the *Kobold* of Germany, and the "dwarfs," "giants" of many lands, who so often possess anthropoid physical qualities and infra-human intelligence. This paper has been amplified and printed in pamphlet form (10 pp.).

Myres (J. L.) Note on the use of the words "glaze" and "varnish" in the description of painted pottery. (Man, London, 1901, 98–99.) Author advises confining use of term *glaze* to vitreous, and *varnish* to gummy and resinous pigments. Discusses also the *slip* of Cypriote vases, *smear*, *stain*, etc.

Newell (W. W.) Fairy lore and primitive religion. (Intern. Mo., Burlington, Vt., 1902, V, 316–337.) Discusses "the illuminating history" contained in *fairy*, *fay*, *fata*, etc. Treats of the "fating" of the child, christening, birth-ceremonies, name-day, fays at nurses, fays at birth and death, fates, fairies as dwarfs, destinies (female), swan-maidens, etc., animism. Among

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Newell—*Continued.*
the conclusions arrived at are: The fundamental ideality of spirits of every sort. Modern man's fancy is restrained by the voice of understanding. The fays correspond to the innumerable Roman genii. Many are the survival of ancient divine powers. The ends of early religion were practical.

—— The legend of the holy grail. VII. (J. Amer. Folk-Lore, Boston, 1902, XV, 54–55.) Brief notes on the grail and Glastonbury, recent literature, etc.

Peet (S. D.) Stone circles in Europe and America. (Amer. Antiq., Chicago, 1901, XXIII, 371–378.) General illustrated discussion. Treats of Stonehenge, Avebury, Portsmouth (Ohio), etc.

—— The common things of the pre-historic age. (Ibid., 395–410.) Treats, with 9 text-figures, of boats, roads, bridges, and canals, in ancient America chiefly.

Piette (E.) Les causes des grandes extensions glaciaires. (Bull. et Mém. Soc. d'Anthr. de Paris, 1902, V^e^ s., III, 88–96.) The author agrees with de Lapparent in finding the reason of the great glacial extensions in the depression of the large extent of land formerly uniting Europe and North America, — a cause local to the North Atlantic region. Mr Piette also discusses the nomenclature of the prehistoric periods, explains certain terms which he proposes to adopt, and delimits others.

Rapport sur le concours du prix Bertillon, 1901. (Ibid., V^e^ s., II., 666–705.) Critical résumés of works submitted for the Bertillon prize: Cauderlier's *Les lois de la population et leur application à la Belgique*, by G. Hervé (pages 668–684); Macquart's *La diminution du taux de la natalité, la "dépopulation française" et les lois de la population*, by G. Hervé (685–693); Ripley's *The Races of Europe* by Y. Guyot (694–705). The prize was divided *ex æquo* between Messrs Cauderlier and Ripley, and M. Macquart received very honorable mention with a medal.

Rapport sur le concours du prix Godard, 1901. (Ibid., 705–708.) The works entered for the Godard prize were Faivre's *Étude médico-légale et sociologique de la criminalité*, Titchener's *Experimental Psychology*, Volkov's *Variations squelettiques du pied chez les primates et les races humaines*. The prize was awarded to the last, of which a critical résumé by M. Anthony is given. Dr Titchener was decreed a medal.

Regnault (F.) Rôle des muscles dans la morphogénie osseuse. (Ibid., 614–618.) After discussing the views of Papillault that the hollowing of bones by muscles is due to the struggle between the muscular and osseous tissues in which the latter has the worst of it, the author treats of the mechanism of osseous projections and depressions. M. Regnault holds that the osseous modifications are due to permanent action of muscles and not to temporary contractions or tensions produced in movements.

Risley (H. H.) On an improved method of measuring the vertical proportions of the head. (Man, London, 1901, 181–183.) Describes, with text-figure, apparatus now in use in the anthropometric work of the census of India. A T-square is used in combination with the height-measure, to which are affixed a clamp and a horizontal bar.

Russell (F.) Know, then, thyself. (J. Am. Folk-Lore, Boston, 1902, XV, 1–13,) Address of President of American Folk-Lore Society, 1902. Argues for the cultivation of anthropological science, as a sense-trainer, thought-stimulator, ameliorator of racial prejudices, checker of ultra-self-complacency, corrective of undue specialization, etc. Its value for the student of religion, the diplomat, the law-maker, and the jurist is shown. The argument is illustrated by incidents from the writer's own experience. Old Peter, his Assiniboine guide, taught him, Dr Russell asserts, "as much about observing as any college professor."

Schmeltz (J. D. E.) Verslag over een bezoek aan de Wereldtentvonstelling te Parijs in October en November 1900. (Rijks Ethn. Mus. te Leiden, 1901, 46–53.) Brief account of visit to Paris Exposition of 1900, with comments on the exhibits from various countries.

Schoetensack (O.) Ueber die Bedeutung der "Hocker" — Bestattung. (Verh. d. Berl. Ges. f. Anthr., 1901,

Schoetensack—*Continued.*
522–527.) The author considers that the neolithic people of Europe, certain Australian tribes and others, who buried their dead in the knee-elbow position, were led so to do by the fear of their return and their desire to prevent it by hampering the corpse in possible movements. Other related customs are referred to. The skeleton of Remedello, figured in the text, shows the "Hocker" burial in exaggerated form.

Steinmetz (S. R.) Der erbliche Rassen und Volkscharakter. (Vierteljhrss. f. Wiss. Philos., Leipzig, 1902, XXVI, 77–126.) Interesting and valuable discussion of the hereditary characters of races and peoples, with critiques of the chief recent literature and abundant bibliographical references. The works of Lapouge and Houston Chamberlain are given special attention. The topics treated are: The theoretical and practical significance and pressing nature of the problem. Its right comprehension. The possibility of hereditary race-characters. The biological-psychological aspect. The intellectual *Anlage* of primitive peoples. The race-characters of Semites and Teutons. Homo Europæus *vs.* Homo Alpinus. Characters of peoples within the same race. In the matter of "racial heredity," the author thinks, more research and less dogmatism is necessary. The Teutons are now the "strenuous," energetic race of the world, yet, according to Tacitus, they gambled, drank, and idled, or fought and hunted. Houston Chamberlain's and Lapouge's estimates of Semitic character cancel each other. The uncivilized (unprogressive) peoples of Aryan stock in Asia cannot be left out of account. Dr Steinmetz holds that no original differences exist between the European and the so-called "lower races." Favorable variations and selections, environments, etc., have given the former more eugenetic individuals, families, groups, than the latter possess. Lapouge's "servility of the brachycephalic peoples" and Horatio Hale's idea that a "Basque" element inculcated a love of freedom into the Aryans are wide apart. The contrast of the *Homo Europæus* and the *Homo Alpinus* has been exaggerated. The essential difference between *race* (Rasse) and *people* (Volk) is that the latter have been for only a short time, relatively (as modern America) under the influence of the differentiating factors. The attempts to fixate unique characters of race have failed.

Stratz (C. H.) Ueber die Anwendung des von G. Fritsch veröffentlichten Messungs-Schema in der Anthropologie. (Verh. d. Berl. Ges. f. Anthr., 1902, 36–38.) The author considers the Fritsch canon valuable for race discrimination, but not to be made exclusive. A series of 600 measurements indicates that the canon holds for normal individuals of the Mediterranean race,— the Nigritians are over, the Mongols under long in the extremities. In the discussion Dr Fritsch considered briefly Stratz's protomorphic, archimorphic, and metamorphic races. Both Drs Stratz and Fritsch disagree with von Luschan's theory as to "mixed" races.

Strauch (C.) Abnorme Behaarung beim Weibe. (Ibid., 534–537.) Describes, with figure in text, a case of abnormal hairiness (about the teats and on the abdomen) in a woman, with reference to like phenomena in both sexes. Hairiness of the teats is rare in women. The subject in question was somatically somewhat masculine and committed suicide by throttling herself, the first case of the sort in Berlin for 17 years.

Super (C. W.) Ethical progress through experience. (Amer. Antiq., Chicago, 1901, XXIII, 384–393.) General argument from "the facts of history" to the conclusion that "progress to be continuous and uninterrupted must be based on the ethical principles, on the recognition of the rights of man, not of a class, and on a willingness to profit by the experience of the race." Experience in its widest extent is the postulate for development.

Symington (J.) On the temporary fissures of the human cerebral hemispheres, with observations on the development of the hippocampal fissure and hippocampal formation. (Man, London, 1901, 151.) Brief abstract of paper concerned with Hochstetter's recent views. The rudimentary gray and white matter existing on the dorsal aspect on the adult human *corpus callosum* is held to be "the remains of a hippocampal formation."

Thomas (N. W.) Suggestions for an international bibliography of anthropology. (Man, London, 1901, 129–

Thomas—*Continued.*
133.) General outline of scheme, with example of titles. Mr Thomas thinks that "the scheme propounded by Dr Brinton will probably be found in practice to have the balance of convenience on its side."

Verneau (V.) Discours du Président pour 1902. (Bull. et Mém. Soc. d'Anthr. de Paris, 1902, Ve s., III, 13–20.) Contains an account of the status of anthropology in the various European Universities.

—— Discours aux obsèques de Mme Clémence Royer. (Ibid., 75 – 78.) Sketch of life and works of Mme Clémence Royer, honorary member of the Society since 1887.

Wake (C. S.) Language as a test of race. (Amer. Antiq., Chicago, 1901, XXIII, 379–384.) Résumé and criticism of Horatio Hale's article on this subject in the *Transactions of the Royal Society of Canada for 1891*. Mr Wake holds that "so far from language being the true basis of anthropology, it is not even a sure test of the affinities of race."

EUROPE

Almgren (O.) Nyare undersökningar af Danmarks "kjökkenmöddingar." (Ymer, Stockholm, 1902, XXII, 56–64.) Résumé of recent investigations of the kitchen-middens of Denmark, based upon *Affaldsdynger fra Stenålderen i Danmark undersogte for Nationalmuseet* (Kjøbenhavn, 1900), embodying the results of investigations by Madsen, Müller, Neergaard, Petersen, Rostrup, Steenstrup, and Winge, carried on in 1893–1898. Of the 8 shell-heaps examined 5 belong to the older and 3 to the later Stone age. Botanical, zoölogical, archeological data are briefly referred to. The oak is the most commonly represented in the charred remains. Of the hunting fauna 10 species are now extinct in Denmark.

Andersson (G.) En stenålders-boplats på Hven. (Ibid., 96–98.) Brief description of a "station" of the Stone age on the island of Hven, investigated in 1899. The fragments of flint and pottery found indicate the first part of the later Stone age.

Baudoin (M.) La photographie stéréoscopique des mégalithes. (Bull. et Mém. Soc. d'Anthr. de Paris, 1901, Ve s., II, 592–602.) Treats, with 4 text-figures, of the advantages of stereoscopic photography of megalithic monuments, etc., and the modus operandi by which the views of various megaliths were obtained.

Bosanquet (R. C.) Report on excavations at Præsos in eastern Crete, (Man, London, 1901, 187–189.) Account of excavations in the spring of 1901. Præsos, the ancient capital of the aboriginal Eteocretans, is barren of Mycenæan remains, though such occur close to the city.

Boule (M.) Les gravures et peintures sur les parois des cavernes. (L'Anthropologie, Paris, 1901, XII, 671–677.) Résumés, with 7 text-figures, the discoveries of Capitan and Breuil, Rivière, etc., of pictographs of the paleolithic period in the caves of La Mouthe, Combarelles, etc. See *American Anthropologist*, 1902, IV, 330.

Brunšmid (J.) Arheološke bilješke iz Dalmacije i Panonije, IV. (Vjesnik Hrvat. Arheol. Društva, Zagreb, 1901, N. S. V, 87–168.) The fourth section, with 72 text-figures, of "Archeological Notes on Dalmatia and Pannonia." Roman inscriptions, remains of buildings, vessels of stone, bronze, clay, etc., tile-stamps, clay-lamps, celts, statues, glass objects, mirrors, fibulæ, rings of silver, needles, iron objects, plates of bronze, altars, monuments, rock-sculptures, etc., are described. Among the more interesting objects are a portrait-head of Augustus, the *pisani kamen* ("inscribed stone") and the rock-reliefs with Mithraitic subjects, the rock-altar to Jupiter at Vital, etc.

—— Groblje bronsanoga doba na Klaćenici kod Jablanca (kotar Senj). Provjest mjesta Jablanca. (Ibid., 53–62.) Brief account of the Bronze-age cemetery on the Klačenica, near Jablanica, with sketch of the history of Jablanica. The neolithic "station" of Jablanica is of considerable importance. See *American Anthropologist*, 1902, IV, 330. The paper is illustrated with 1 plate (figuring fibulæ, etc.,) and 1 text-figure.

Brunšmid—*Continued.*

—— Predmeti halštatskoga doba iz grobova u Vranića gromili u Širokoj Kuli. (Ibid., 63–72.) Describes, with 2 plates and 2 text-figures, objects of the Hallstatt period (fibulæ and other ornaments chiefly) from graves in Siroka Kula, district of Gospič.

—— Hrvatske razvaline. (Ibid., 44–52.) Treats, with 5 text-figures, of three ruined churches in the Croatian districts of Otočac and Gospič, and of ornaments from the old Croatian cemetery of St Mark at Otočac.

—— Nekaliko naših novaca u Hrvatskoj i Slavoniji, XII–XV. (Ibid., 235–243.) Brief account of finds of coins of the third century in Croatia and Slavonia. Continued from previous numbers.

—— Nov ulomak grčkoga napisa iz Lumbardu na otoku Korčuli. (Ibid., 19–20.) Treats, with 1 text-figure, of a new fragment of the Greek inscription from Lumbarda, in the island of Curzola.

—— Stari utezi u narodnom muzeju u Zagrebu. (Ibid., 244–245.) Brief account, with 2 text-figures, of ancient bronze weights from Mitrovica and Salvona in the Agram Museum.

—— *i* **Jevremović** (L.) Stari napisi iz okoline Požarevca u Srbiji. (Ibid., 1–18.) Treats of Roman inscriptions in the neighborhood of Požarevac, Servia.

Bryce (T. H.) Prehistoric man in the island of Arran. (Rep. Brit. Assoc., Lond., 1901, LXXI, 795–797.) Gives list of cairns and contents. Brief notes on stone and bronze implements, ornaments, pottery, human bones (crania are dolichocephalic). The culture is neolithic.

Celestin (V.) Rimski svjetiljke iz Osijeka. (Ibid., 21–43.) Treats, with 20 text-figures, of Roman lamps of clay and bronze from Essek, the inscriptions, markings, etc.

Coffey (G.) Irish copper celts. (J. Anthr. Inst., Lond., 1901, XXXI, 265–279.) Treats, with 14 plates, of the chemical composition, types, distribution, etc., of copper celts in Ireland. The author concludes that these objects "represent a period in which copper was in general use throughout Ireland, before bronze was known." In the discussion, Mr Balfour also expressed his "belief in the existence of a definite Copper age in Europe, bridging over the gap separating the Neolithic and the Bronze ages." Copper celts appear to be very rare in England. The oldest forms of copper celts "closely resemble the stone celt forms found in Ireland." The copper celts are without ornamentation, nor is there any trace of a stop-ridge. The analyses made "agree substantially among themselves and with those of copper celts from other parts of Europe." The small percentage of tin found came probably with the copper.

Courty (G.) Petits grès taillés en biseau. (Bull. et Mém. Soc. d'Anthr. de Paris, 1901, Ve s. II, 716.) Brief account, with text-figure, of bevel-shaped fragments of sandstone (probably used to mark rocks, etc.), from Fontainebleau near the "station" of Lardy (Orleans). The author thinks they were used by primitive man.

—— Sur un gros coup de poing chelléen. (Ibid., 1902, Ve s., III, 50–51.) Brief note, with text-figure, of a remarkably large Chellean "coup de poing" from the department of Seine-et-Oise.

Cunningham (J. H.) Excavations at Ardoch. (Rep. Brit. Assoc., London, 1901, LXXI, 790–791.) Notes of investigations at the Roman station of Ardoch, Perthshire.

De Cock (A.) Spreekwoorden en zegswijzen, afkomstig van oude gebruiken. (Volkskunde, Gent, 1901–1902, XIV, 19–24, 72–78, 102–108, 149–157, 190–198.) Nos. 392–437 of proverbs and sayings originating in old customs. The subjects concerned here are the weaving trade, professions, etc. Explanatory notes and bibliographical references are given for each item. The terms *bastard*, *bankaard*, *Bankkind*, *enfant de la balle* = "illegitimate child" are worth noting (p. 193). The teacher is satirized in the proverb "a hundred teachers, ninety-nine fools" (p. 106). In pages 76–77 are given several references to "drinking tobacco."

—— Het liedje van de drie tamboers. (Ibid., 31–35, 78.) Two versions (with music) of the song of the "Three Drummers." This Flemish folksong ap-

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De Cock—*Continued.*
pears in a military songbook issued to the army in 1901. It is almost identical with the Breton folksong "Les trois tambours."

—— Taalvervorming in den kindermond. (Ibid., 89–100.) Treats of the transformations and deformations of words and phrases in the rhymes and verses used by Flemish children. Many interesting examples are given. The subject has been discussed with more detail in A. De Cock and I. Teirlinck's forthcoming work *Kinderspel en Kinderlust in Zuid-Nederland*, which was crowned by the Royal Flemish Academy in 1901.

—— Allerheiligen — Allerzielen. (Ibid., 133–143, 173–181.) General discussion, with numerous bibliographical references, of the festival of "All Saints," "All Souls," and its cognates past and present. Among other things "angel cakes," "soul cakes," the "soul wagon," etc., are referred to.

—— Het liedje van den uil. (Ibid., 158–161.) Two new versions (with music) of the Flemish folksong, "The owl that on the pear-tree sat."

—— Sagen betreffende de stalkaars. (Ibid., 161–162.) Three brief Flemish legends about the will-o'-the-wisp.

Evans (A. J.) The neolithic settlement at Knossos and its place in the history of early Ægean culture. (Man, London, 1901, 184–186.) Brief account, with 14 text-figures, of an early and very extensive neolithic settlement on the hill of Kephala, where an abundance of pottery, stone implements (including over 300 celts), and many small human images of clay and marble (prototypes of subsequent Metal-age stone images), etc., were found. These images, Dr Evans thinks, were ultimately derived "through intermediate types, from clay figures of a Babylonian mother-goddess." This neolithic settlement was the first of the kind explored in the Greek world, and is consequently of great interest. The lowest limits of the settlement cannot be later than 3000 B.C., the higher limit is very much more remote. See also *Rep. Brit. Assoc.*, Lond., 1901, LXXI, 792–793.

—— "The oldest civilization of Greece." (Ibid., 173–175.) Criticism of the position of Mr H. R. Hall, author of the *Oldest Civilization in Greece*, and of a reviewer of the work in a previous number of *Man*. Mr Evans holds that he has "stripped the last rags of the theory that brought down Mycenæan civilization in Cyprus to the eighth or even the seventh century, B.C."

Fouju (G.) Fouilles au dolmen de Ménouville. (Bull. et Mém. Soc. d'Anthr. de Paris, 1902, V^e^ s., III, 54–57.) Account of investigations at the covered-passage dolmen of Ménouville in 1901. A number of fragments of human skulls and other bones were discovered, some flints, etc. *See* Manouvrier (L.).

—— Instruments paléolithiques et néolithiques en roche meulière. (Ibid., 62–63.) Brief note on a "coup de poing" from Marais, and some millstone axes from Seine-et-Oise, etc.

Fourdrignier (E.) Rapport sur le Congrès de Tongres. (Ibid., V^e^ s., II, 713–716.) Résumés the proceedings of the Congress of the Archeological and Historical Federation of Belgium held at Tongres, in August, 1901. About Tongres pre-Roman and Roman antiquities abound,—it was the country of the Aduatuci and Ebuones, redoubtable adversaries of Cæsar.

Galton (F.) The possible improvement of the human breed under the existing conditions of law and sentiment. (Man, London, 1901, 161–164.) Abstract of Huxley Memorial Lecture, with "standard scheme of descent." See *American Anthropologist*, 1902, N. S., IV, 310.

Giraux (L.) Pointes de flèche de Grossa, Corse. (Bull. et Mém. Soc. d'Anthr. de Paris, 1902, V^e^ s., III, 80–82.) Brief description of a series of 73 arrowheads of all possible forms from Grossa in Corsica. The specimens are of jasper, flint, and obsidian, the last imported from Sardinia (?).

Hervé (G.) Crâne macrocéphale de Saint-Prex et photographies des sépultures préhistoriques de Chamblandes. (Ibid., 1901, V^e^ s., II, 583–587.) Brief account of cast of a deformed skull from a Helveto-Burgundian grave at Saint-Prex and of photographs of the neolithic graves of Chamblandes, presented to the Society by Dr Schenck. The discussion of this paper turned to the subject of skull-deformation.

Hogarth (D. G.) Explorations at Zakro in eastern Crete. (Man, London, 1901, 186–187.) The earliest settlement revealed many broken vases of stone and clay whose Kamáres type is more closely related to the Mycenæan than had been suspected. The absence of neolithic antecedents suggests colonial or foreign origin. The later settlements yielded pottery from the acme of the Mycenæan period till its close and many other interesting remains, including "a hoard of 500 clay impressions of lost signet gems," consisting of 150 different types and affording "a priceless record of Mycenæan glyptic art and religious symbolism." Two tablets in the linear "Cretan" script were also discovered. It may be that "the aboriginal civilization of East Crete was independent of both the Kamáres and Mycenæan civilization." See also *Rep. Brit. Assoc.*, Lond., 1901, LXXI, 793–794.

Jelič (L.) Spomenici grada Nina. (Vjesnik Hrvatsk. Arheol. Društva, Zagreb, 1901, N. S., V, 184–192.) Treats, with 5 text-figures, of the antiquities of the town of Nin (Nona) in Dalmatia. Mediæval walls, Roman gate, Cloister of St Maria are discussed. Continued from last volume.

Klaić (V.) Rimski zid od Rijeke do Prezida. (Ibid., 169–176.) Brief account of the Roman wall from Rijeka (Fiume) to Prezid.

Laszowski (E.) Prilog k hrvatskc-sfragistici. (Ibid., 73–86.) Brief account, with 17 text-figures, of the seals of Croatian towns. Continued from Vol. I.

Laville (A.) Disque et lame en forme de grattoir magdalénien. (Bull. et Mém. Soc. d'Anthr. de Paris, 1901, V^e^ S., II, 587–588.) Brief note, with 2 text-figures, of a flint disk and a scraper of Magdalenian type from Corbicules.

Layard (Nina) Notes on a human skull found in peat in the bed of the river Orwell, Ipswich. (Rep. Brit. Assoc., Lond., 1901, LXXI, 789.) Skull found in January, 1901, at a depth of about four feet. Index 74.5; capacity 1,570 cc. See also *Man*, London, 1901, 151.

Lönborg (S.) Finnmarkerna i mellersta Skandinavien. (Ymer, Stockholm, 1902, XXII, 65–90.) General account, with map, of the Finnish districts of central Scandinavia. The Finnish immigration into this region began in the fourteenth century.

Manouvrier (L.) Trépanation crânienne préhistorique post-mortem. (Bull. et Mém. Soc. d'Anthr. de Paris, 1902, V^e^ S., III, 57–59.) Brief description of a case of trepanning in a fragment of skull from the dolmen of Ménouville. *See* Fouju (G.).

Mielke (R.) Ueber den Gehrener "Opferheerd." (Verh. d. Berl. Ges. f. Anthr., 1902, 38–46.) Treats, with 10 text-figures, of the so-called "Opferheerd," an elevation at Gehren near Luckau, supposedly used for sacrificial purposes. The excavations revealed the fact that the "place of sacrifice" is merely a boundary mark, with an old rampart. The remains found (fragments of pottery chiefly) indicate two cultures, late Slavonic and medieval.

Murisier (E.) La psychologie du peuple anglais et l'éthologie politique. (Arch. d. Pysch. d. l. Suisse Rom., Genève, 1902, I, 261–277.) Critical review of Boutmy's recent book. Professor Murisier expresses the opinion that "a monograph on *cant* would reveal to us, better perhaps than a larger and apparently more complete study, the character of the English people; while a monograph on the *sense of the ridiculous* would constitute the best psychology of the French people."

Myres (J. L.) Note on Mycenæan chronology. (Man, London, 1901, 175–176.) Declines to agree to the statement that "Mycenæan remains in Cyprus last down to the eighth century B.C. (possibly later)."

Ostermann (S.) Paleolitički čovjek i njegovi suvremenici iz diluvija u Krapini u Hrvatskoj. II. (Vjesnik Hrvatsk. Arheol. Društva, Zagreb, 1901, N. S., V, 246–247.) Second part of a brief sketch of paleolithic man and his contemporaries of the diluvium at Krapina, Croatia. Human and animal remains are considered.

Purič (J.) Prethistorijske naselbine iz okolice Erduta. (Ibid., 177–183.) Brief account, with 4 figures, of prehistoric settlements about Erdut and the finds there.

XUM

Reinach (S.) Les fouilles de Phæstos en Crète. (L'Anthropologie, Paris, 1901, XII, 678–684.) Résumés, with 4 text-figures, the recent investigations of Halbherr and Pernier at Phæstos in Crete, 1900–1901. The palace is treated of in particular. Beneath the palace lie the remains of a neolithic "station."

Report on the excavations at Arbor Low, August, 1901. (Rep. Brit. Assoc., London, 1901, LXXI, 427–440.) General account of excavations at the stone circle of Arbor Low, Derbyshire, by H. S. Gray; notes on the stone implements by H. Balfour; on the human skeleton by J. G. Young. The stone implements were few and of well-known neolithic forms. The skeleton is probably due to a later interment and is not neolithic.

Richardson (R. B.) A series of colossal statues at Corinth. (Amer. J. Archæol., Norwood, Mass., 1902, VI, 7–22.) Brief account, with 6 plates and 10 text-figures, of "a series of colossal statues of Parian marble just inside the Agora, a little southwest of the west buttress of the Propylæa." The remains in question are Roman of about the second century and represent some triumph over the "barbarians."

Richet (C.) L'état stationnaire de la population de la France est-il un danger? (Rev. Scientif., Paris, 1902, 4e s., XVII, 257–262.) A reply to the article of M. Le Bon in the *Revue Bleue*. According to M. Richet, Le Bon's arguments that more equal distribution of taxation avails nothing, that other countries of Europe have a decreasing natality, that a country small in population may still be great, that peoples can become great by agriculture, etc., are all false or fallacious. The state, the author thinks, has a right, by wise laws, to defend itself against the abdication of the individual.

—— Les démoniaques d'après les représentations populaires. (Ibid., 359–368.) This general discussion of "demoniacs in popular art," which is illustrated by 14 text-figures, is extracted from the author's forthcoming volume, *L'Art et la Médecine*.

Rivière (E.) Deuxième note sur la lampe en grès de la Grotte de la Mouthe, Dordogne. (Bull. et Mém. Soc. d'Anthr. de Paris, 1901, Ve s., II, 624–625.) Gives the results of the chemical examination by M. Bertholon of the residue of combustion in the stone lamp from the grotto of La Mouthe, in Dordogne. See *American Anthropologist*, 1902, IV, 158.

Ross (T.) Excavations at the Roman camp at Inchtuthill in Perthshire. (Rep. Brit. Assoc., Lond., 1901, LXXI, 791.) Usual finds reported,—pottery, bricks, tiles, etc.

Schmidt (H.) Ueber alt-Europäische Gefäss-Ornamentik. (Verh. d. Berl. Ges. f. Anthr., 1901, 441.) Brief abstract. The author holds that the geometric decoration of pottery developed in Europe. There are two great parallel decoration-regions, the old Ægean and the neolithic of northern Europe. Both are transferences of ornamentation of the human body to clay vessels. The Trojans, he thinks, were of European origin, as their pottery-ornamentation indicates. See also page 538.

Schmit (E.) Un cimetière gaulois découvert à Châlons-sur-Marne par M. René Lemoine. (Bull. et Mém. Soc. d'Anthr. de Paris, 1901, Ve s., II, 718–723.) Brief account of the investigation of 16 graves in a Gaulish cemetery at Châlons-sur-Maine by MM. Lemoine and Schmit in 1901, and of the objects there discovered, human remains, etc.

Soteriades (G.) The Greek excavations at Thermos. (Rec. of Past, Washington, 1902, I, 173–181.) Brief account, with 2 plates (4 figs.) and 6 text-figures, of the excavations carried on in 1897 by the author (on behalf of the Greek Archeological Society) at Thermos, "the political and religious center" of the Ætolian League, which flourished in the third and early part of the second century, B.C., and the remains there discovered. These were chiefly: A long portico with Doric columns with remains of buildings and statues in front (3d century, B.C.); two temples,—of which the larger, as the other remains suggest, was rebuilt about 200 B.C. Many interesting terra-cottas, roof-tiles (with archaic heads), etc., were also found; likewise a fragment of a metope, and some inscriptions, bronze objects, bits of geometric vases. The careful examination of the temple-site revealed the fact that an altar first existed, then

Soteriades—*Continued.*
temples of the eighth and the sixth century, and lastly the inferiorly rebuilt temple of the second century. Evidences of Ætolian buildings at Thermos in the seventh or eighth centuries also occur. These excavations, according to the author, prove the truth of many statements of Polybius, etc.

Sumner (W. G.) Suicidal fanaticism in Russia. (Pop. Sci. Mo., N. Y., 1902, LX, 442–447.) Based on Sigorski's account of the suicide epidemic in the farmsteads of Tirnova, in the Dniester valley, published in 1897. The religious element in this epidemic by which 25 persons lost their lives in 1896 has been overestimated.

Thieullen (A.) Silex bijoux diluviens. (Bull. et Mém. Soc. d'Anthr. de Paris, 1901, V^e^ S., II, 603–608.) Brief account, with 4 text-figures, of what the author terms "jewels" and fetishes of flint from the diluvium, with reply to criticisms of his previous paper.

Tocher (J. F.) *and* **Gray** (J.) The frequency and pigmentation value of surnames of school-children in East Aberdeenshire. (Man, London, 1901, 153–154.) Résumés the results of the study of the surnames and pigmentation of 14,561 children,—practically all of East Aberdeenshire. The pigmentation of Highland surnames (63 representing 13 to 14 % of the population) "corresponds closely with the pigmentation in their districts of origin." The darkest pigmented surnames are found in the fishing-communities, suggesting a Belgian origin. The authors find "a wide variability in the pigmentation of different surnames," which seems to indicate that "septs or clans, as represented by surnames, tend to retain distinct physical characteristics." The calculation of the Highland element according to pigmentation-surnames agrees with the estimate from anthropometric data (14 %). Of all the surnames noted (751 in number) *Milne*, counting 267, was the most frequent. One-half of the surnames belong to 950 persons and one-half of the population has only 12½ % of them. See also *Rep. Brit. Assoc.*, Lond., 1901, LXXI, 799.

Vauville (O.) Silex néolithiques. (Bull. et Mém. Soc. d'Anthr. de Paris, 1901, V^e^ S., II, 713.) Brief note concerning 76 neolithic flints from Montfort-l'Amaury (Seine-et-Oise) presented to the Society.

Verneau (R.) Les récentes découvertes de S. A. S. le Prince de Monaco aux Baoussé-Roussé. Un nouveau type humain fossile. (C. R. Acad. d. Sci., Paris, 1902, CXXXIV, 925–927.) Brief account of the important find of human remains in the famous caves of Baoussé-Roussé, near Mentone, in the part known as the *Grotte des Enfants* (in 1874–5 two skeletons of children were discovered there). At a depth of 1.90 m. an entire human skeleton was found and two others at 7.65–7.75 m. The implements found were of the Mousterian type. Of the last two skeletons one is that of an old woman, the other that of a young man (nearly adult). The stature is 1.57 m. and 1.55 m. respectively, the cephalic index 68.58 and 69.27. The head is disharmonic, with broad face. In this, as well as in the low and large orbits, the two skulls resemble the Cro-Magnon type. The most remarkable feature, however, is "the very negroid character of the lower part of the face, and of the nose." There exists also an enormous sub-nasal prognathism. The upper limbs are also largely developed. The author proposes to style "type de Grimaldi" this new variety of man in southern Europe, the discovery of which "proves among our ancestors we must include individuals of a negroid type."

Volkov (T.) Nouvelle découverte de représentations figurées des Scythes. (Bull. et Mém. Soc. d'Anthr. de Paris, 1901, V^e^ S., II, 717–718.) Brief account of a gold plate with *repoussé* figures of divers Scythian scenes, found by M. Henzey in a *kurgan* at Babykha (Kiev). One is a boudoir, another a sacrificial scene. M. Volkov considers this a remarkable find.

Voss (A.) Die Briquetage-Gebiet im Seillethal in Lothringen und ähnliche Funde in der Umgegend von Halle a. S. und im Saalethal. (Verh. d. Berl. Ges. f. Anthr., 1901, 538–544.) General account of the "brick" finds (large masses of burned clay of diverse form, some prismatic, others cylindrical) from the valleys of the Séille and Saale. Opinions as to the use of these "bricks" are wide apart,—foundations for build-

Voss—*Continued.*
ings, blocks (when heated) for crystallizing salt from water, etc., but experiment has shown that the second was probably the real use.

—— Weihnachts-Gebräuche in Böhmen und Nachbarschaft. (Ibid., 544.) Brief note on the puppet-figures of Nicolo (St Nicholas) and his adjutant "Krampus," used in Christmas festivities in Bohemia, etc.

Wiklund (K. B.) Finska språkets nuvarende utbredning i Värmland och Grue finnskog. (Ymer, Stockholm, 1902, XXII, 15–18.) Brief account, with map, of the present range of the Finnish language in Värmland and the "Grue finnskog." The author visited "the Finn wood" in 1894.

Willett (E.) On a collection of palæolithic implements from Savernake. (J. Anthr., Inst. Lond., 1901, XXXI, 310–315.) Brief account, with two plates (14 figures), of a series of flint implements, — oval type, hammer-stones, wedge-shaped stones, rimers or borers, throwing-stones,—of "a marked individuality, as a whole," from Knowle Farm, near Savernake. As to the cause of the polished surfaces on some of these flints divergent opinions were expressed in the discussion.

Zaborowski (S.) Crânes anciens et modernes de la Russie méridionale et du Caucase. (Bull. et Mém. Soc. d'Anthr. de Paris, 1901, V^e^ S., II, 640–666.) Discusses, with a number of cranial measurements, the Cro-Magnon race and the type of the oldest *kurgans* (Smiela, Kobrynowa, etc.); skulls from a Napthalan grave in the Dvantchio district of Elisabetpol and from Temire-Kala near Kars and their relations to the Karabudakh skull and the ancient Medic stock; crania from Abbas-Tuman, government of Tiflis, and their relations to the modern Georgians and Persians; origin of the Georgians; a modern deformed skull of ancient type from Daghestan and the probable persistence of the old custom of deformation till today; crania from the old fortress of Baku and their diverse origins. According to M. Zaborowski "the crania of the oldest *kurgans* pass from the Cro-Magnon race to the type of the primitive neolithic or Celtic blonds." The Medes he styles "Turanian." The modern Georgian, descendant of "the primitive Caucasian of Samthavro," has suffered a *rapprochement* to the type of the modern Persians. The craniology of Baku is mixed by reason of the occupancy of the place, which dates only from the sixth century A.D., by Arabs, Persians, Turks, Russians.

—— La caverne d'Okopa. (Ibid., 710–712.) Résumés the recent publication of Czarnowski on his investigations in the Cavern of Okopa (near Ojcow) in the Cracow region, so celebrated for its prehistoric caves. The "station" of Okopa appears to belong to the first part of the neolithic period.

AFRICA

Ankermann (*Dr*) Die Afrikanischen Musikinstrumente. (Ethnol. Notizbl., Berlin, 1901, III, Hft. 1, VIII + 1–134.) This excellent monograph on African musical instruments is accompanied by 171 text-figures and 3 distribution maps. The subject is treated under three heads: Description and classification (stringed instruments, the *sansa*, wind-instruments, percussion-instruments, — skin-drum, wooden drum, bell, *marimba*), geographical distribution, development, and origin. The collection in the Berlin Museum upon which the monograph is based numbers 180 stringed instruments, 220 drums, 440 wind-instruments, etc. Of stringed instruments the musical bow, the oldest and simplest, seems to be the most widely spread; the *valiha* is limited to Madagascar. In North, East, and South Africa the sinews of animals are generally used for strings, in West Africa the fibers of plants. The distribution of the *sansa* has been influenced by the sea-faring Krumen. The drum, "the negro's indispensable musical instrument," is found practically over all Africa, the only cases of its absence noted being in Urundi and among the Bubi of Fernando Po. The *marimba* occurs in three distinct regions, the Congo-basin, etc., of South Africa; in the country of the A-Sandeh and adjoining parts; the Mandingo country. Dr Ankermann recognizes in Africa 10 musical "provinces," each of which has instruments generally characteristic of it. Of these "provinces" two (North African, Madagascar) are

Ankermann—*Continued.*
Asiatic in character, three others are marked by ancient Egyptian resemblances (and Asiatic?), while four (Zambezi, Congo, East African, Mandingo) may be called really African and perhaps also the South African (very poor in musical instruments). From the simple musical bow the various string-instruments have been developed, —the author, however, is inclined to believe that the discovery of the tone-giving of tense fibers preceded the invention of the bow. Of wind-instruments the simple pipe is the most primitive. The origin of the various sorts of drums is not as clear as might be. Concerning the *marimba* Dr Ankermann considers that it may have been independently developed in Africa and Asia. It is really a "musical instrument" in our sense of the term.

Danjou (*Dr*) Objets provenant de Madagascar. (Bull. et Mém. Soc. d'Anthr. de Paris, 1901, V^e^ s., II., 630–634.) Brief notes on a Tanala shield (and the cult of the dead), some bundles of little stakes used to make pathways impassable for the enemy, several fetishes, a carved spoon and one imitated after the European model, all collected by Drs Danjou and Conan from the east coast of the island.

Felkin (R. W.) A collection of objects from the district to the southwest of Lake Nyassa. (Man, London, 1901, 136–137.) Brief notes, with 5 figures in text, on a scraper-dagger, two combined dagger-beer-ladles, an iron fighting-axe, and a stabbing-spear.

Frazer (J. G.) South African totemism. (Ibid., 135–136.) Brief note on the data in Dr Theal's recent account of the religious beliefs, etc., of the Bantu tribes. Mr Frazer thinks that the facts in question make "the totemism of the Bantu tribes of South Africa resolve itself into a particular species of the worship of the dead,—the totem animals are revered as incarnations of the souls of dead ancestors." This is close to the Wilken-Tylor theory.

Fülleborn (F.) Ueber künstliche Körperverunstaltungen bei den Eingeborenen im Süden der deutsch-ostafrikanischen Kolonie. (Ethnol. Notizbl., Berlin, 1901, II, Hft. 3, 1–29.) Treats, with 6 plates and 85 text-figures, of artificial bodily mutilations, etc., among the native tribes of the southern part of German East Africa (scar-tattooing; knocking out, filing, etc., of teeth; perforation of upper and lower lips; perforation of nostril; perforation of lobe of ear; bodily mutilations as punishment; treatment of hair of head and of body; artificial coloration of the body). Tattooing among the Wayao, Makua, Wamuera, and Nyassa peoples is discussed with some detail. The extent to which tattooing is carried on may be seen from the figures of a Mdonde man on page 10, and of a Myao on page 7. Like mutilations of the teeth, tattooing is practised "chiefly for beauty's sake." Lip-boring seems to be confined almost entirely to the women, and the perforation of one nostril is very common among the Wayao and Makua women. Ear-piercing is not of general occurrence. Bodily mutilation as punishment is very rare (in the case of a Mwemba man, both hands, nose, upper lip, and penis had been removed). Among the Wanyakyusa, Wangoni, etc., the strangest fashions of hair-dressing (shaving in spots; use of grease, mud, etc.; plaiting) are in vogue, even for children. Eyelashes are often removed; eyebrows, hair on genitals and armpit shaved off, etc. The Wanyakyusa and Wakesi redden their bodies with ground dyewood, and, as a sign of mourning, their women especially color the head and upper part of the body white. Painting-white for other reasons is also in use.

Huot (M.) Les peuplades de l'Oubangui et du Bahr-el-Ghazal. (Rev. Scientif., Paris, 1902, 4^e^ s., XVII, 301–306, 394–400.) Treats of the tribes of the Ubangi (Bondjos), Banziris, Songos, Yakomas, N'Sakaras, Zandes (Niam-Niam), Dinkas, etc. The so-called Bondjo tribes, though of diverse origins, appear to have almost identical manners and customs. The *motif* of inter-village wars is said to be cannibalism,—some aspects of "the struggle for life" are still to be seen here in all their ferocity (the crushing of the weak by the strong, etc.). The Bondjos have received their name from the light color of their skin. In house-building, tattooing, costume, ornaments, etc., the Banziris differ somewhat from the Bondjos, but generally resemble them in manners and customs. At the death-feasts

Huot—*Continued.*
human flesh is eaten and in war-time the bodies of slain enemies,—otherwise they are not anthropophagous. The Songos belong to the same race as the Banziris. Unlike the Songos the Yakomas are industrious, busy, and active. They are workers in iron and copper especially. The country of the N'Sakaras is the "land of petty sultanates." The Quarrés (of the Zandé country) the author describes as "the most hideous negroes in the world." The Gabous have recently been decimated and reduced to slavery. The Zandes are mixed descendants of the redoubtable Niam-Niam. They are noteworthy for not using the ordeal of poison, although they possess poisoned arrows. The Dinkas of the region studied are "a race apart." Their legs are of such a length (adaptation to marshy *milieu*, like the birds; etc.) as to give one the impression that they must be walking on stilts. Both men and women are tall and rather well-built. Villages, properly so called, do not exist among them, only large farms surrounded by plantations. On page 399 are given measurements of a typical individual from each of the peoples in question. From the author's figures the height of the Dinka is 1.70, height sitting 0.74 m.

Laidlaw (G. E.) Some ethnological observations in South Africa. (Amer. Antiq., Chicago, 1902, XXIV, 77–84.) The same facts as in the paper noticed in the *American Anthropologist*, 1902, IV, 336.

Littmann (E.) Abyssinian folk-literature. (Princeton Univ. Bull., 1901, XIII, 14–16.) In the three chief modern languages of Abyssinia, as well as in the older Ethiopic, there exists a large folk-literature (proverbs, fables, fairy tales, riddles, songs in honor of kings, heroes, and warriors, wedding songs, dirges, etc.) about which not much is known. A number of proverbs, among them the "chain proverb" on the strength of woman, a brief animal-tale, a few lines of one of the old Amharic "Songs of the Kings," are given in English versions. Reference is made to Professor Gundi's *Provverbi, strofe, e racconti Abissini*, published in 1894, which contains much valuable folklore from the Amharic language. The author promises further studies of modern Abyssinian folk-literature as well as an account of an Harari MS. in Arabic characters.

Myers (C. S.) Four photographs from the Oasis of El Khargeh, with a brief description of the district. (Man, London, 1901, 113–116.) Brief account, with a plate and 2 text-figures, of the Egyptian oasis of El Khargeh, the Christian necropolis north of the village of the same name, the ruined temple of Hibis, etc. The temple of Hibis was erected 521–424 B.C. by the Persian kings Darius I and II. El Khargeh was used before 1000 B.C. as a place of exile, and thither in 434 A.D. Nestorius was banished. At the present day, however, it has no Christian population. The early Christians of El Khargeh seem to have continued the old Egyptian practice of mummifying the dead, made offerings to the soul of the dead, used the symbol *ankh*, etc. On the walls are many interesting paintings of old Testament characters, early Christian saints, etc.

—— The bones of Hen Nekht, an Egyptian king of the third dynasty. (Ibid., 152–153.) Brief notice, with 4 text-figures (views of cranium) of the bones of Hen Nekht (*ca.* 4000 B.C.), "the earliest known king whose remains have been found." His tomb is near Girgeh. The skull was "very massive and capacious, and extraordinarily broad for an Egyptian," — almost brachycephalic; and its features "agreed more closely with those of dynastic than with those of prehistoric skulls." The stature probably exceeded 1870 mm. (Egyptian average, later and prehistoric = 1670) and the proportions of the long-bones to one another were "such as characterize negroid skeletons, a condition frequently observed in the prehistoric period, and commonly in the later period of the early empire." Mr Myers believes that this "giant king" is identical with the Sesochris of Manetho and the Momcheiri of Eratosthenes,—both the same person. The broad-headed race to which this king belonged he would bring from Asia, rather than from Punt. See also *Rep. Brit. Assoc.*, Lond., 1901, LXXI, 797–798.

Myres (J. L.) Collateral survival of successive styles of art in North Africa. (Ibid., 102–103.) Brief account, with illustration from photograph, of the

Myres—*Continued.*
pottery for sale in the market of Khoms or Lebda in Tripoli in April, 1896. Three kinds of pottery occur there together: The rimmed long-necked bottles (North Africa, unchanged since the Arab conquest); large, ovoid water-jars, smaller, wide-mouthed jars, one-handled jugs, and open saucers (late Greco-Roman immediately previous to Arab conquest); hand-made middle-sized fire-smoked bowls of dull black clay (practically the survival of a neolithic type).

—— A piece of early masonry at Chaouach in Tunis. (Ibid., 133–134.) Brief account, with text-figure, of a wall the style of which (suggesting Greek work of the sixth century B.C.) is "in complete contrast both with the unhewn stones of the prehistoric tumuli, and with the regular isodomous masonry of the Roman site below the hill." The author considers this another evidence that "in the sixth century, B.C., the material civilization of Carthage was already in great measure dominated by the higher art and industry of her Hellenic rivals."

Negreiros (A.) *et* **Orban** (V.) L'Angola. (Bull. Soc. d'Études Colon., Bruxelles, 1902, IX, 165–204.) Second part of illustrated account of Angola. Contains a few notes on the native population.

Petrie (W. M. F.) The races of early Egypt. (J. Anthr. Inst., Lond., 1901, XXXI, 248–255.) After briefly discussing sources and dates, the author describes the following types: aquiline (Libyan connection), plaited-beard (from Red Sea coast, or foreign invaders), pointed-nose (from highlands of eastern desert), tilted-nose (general type of middle Egypt at time of dynastic invasion), forward-beard (Lower Egyptian in origin), straight-bridged (conquering dynastic race from Red Sea region of upper Egypt), mixed type of fourth dynasty. On page 255 is a table showing the nature of head, nose, chin, beard, hair, dress in the various types, and the article is accompanied by 3 plates with 30 figures (portraits from the monuments). Dr Petrie wisely observes that "purity" of races in 5000 B.C. is as much a fiction as in 1900 A.D. He also "fails to see that craniometry has any serious evidence to bring against the connection of the prehistoric people of Upper Egypt with those of ancient (or even modern) Algiers." The close relation of the prehistoric Egyptians and the Libyans seems fully established. The general conclusion reached is that "North Africa (Libyans), Egypt, and Syria (Amorites) were occupied by allied tribes of a European character."

—— An Egyptian ebony statuette of a negress. (Man, London, 1901, 129.) Brief description (with plate) of "the finest piece of Egyptian sculpture on a small scale," found at Thebes about 1896 and now preserved at University College, London. The figure belongs to the eighteenth dynasty and represents a native of the Upper Nile.

—— Egyptian cutting-out tools. (Ibid., 147–149.) Brief account, with 13 outline text-figures, of copper knives for cutting textiles, etc., from the time of King Zer (4700 B.C.) to the nineteenth dynasty.

—— The royal tombs at Abydos. (Harper's Mo., N. Y., 1901, 682–687.) Popular account, with 8 text-figures, of recent discoveries.

Rabot (C.) Recent French explorations in Africa. (Nat. Geogr. Mag., Wash., 1902, XIII, 119–132.) Illustrated account of the numerous scientific expeditions under French auspices in the regions of the Sahara, Sudan, Guinea, etc. A few notes on the people of the country.

Rivers (W. H. R.) The color vision of the natives of Upper Egypt. (J. Anthr. Inst., Lond., 1901, XXXI, 229–247.) Gives results of examination of 53 men and boys from El Amrah and El Arabah in Upper Egypt. The tests were made in December, 1900, and January, 1901, with Holmgren's wools, Nagel's color-blindness method, and Lovibond's tintometer,—the 10 subjects from El Arabah had been examined a year previously by Mr Randall-MacIver. The Egyptian (Arabic) color-nomenclature is discussed in detail (Nagel's cards and Rothe's papers were used), and the general results compared with those obtained from the Murray islanders of Torres strait. According to the author, "in the language employed for color by these peasants of Upper Egypt, we find exactly the same features as those which characterize primitive color nomencla-

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Rivers—*Continued.*
ture in other parts of the world." It is interesting to find that occasionally a gray paper was called *Manakan* ("American") *asmar*. An influence of language seems noticeable in defective wool-matchings, also an imperfection of the Holmgren wool-test in the diagnosis of color-blindness. The proportion of the color-blind among the 80 individuals examined by Dr Rivers and Mr Randall-MacIver was 5%, rather more than among European races in general. The possibility is noted that "the various civilizations of Egypt may have passed over the fellâhin without affecting their mental development in any marked degree, and they may continue to have the same primitive ideas of color which their ancestors had several thousand years ago, just as they continue to use the *shâdûf* to irrigate their fields." In the discussion Mr McDougall expressed the opinion that "primitive vision corresponded to our sense of gray," the other senses for colors being subsequently differentiated.

Shrubsall (F. C.) Notes on crania from the Nile-Welle watershed. (Ibid., 256–260.) Brief account, with tables of measurements, of two Monbottu, three Azandeh (Niam-Niam), one Bari, and one Bambute skull, all male except one Niam-Niam, and all in the museum of the Royal College of Surgeons, except the Bambute which is in the British Museum. According to Dr Shrubsall there are "very close resemblances between the Monbottu and the more southern Bantu peoples." The Azandeh are very dolichocephalic, the Monbottu mesaticephalic. The Azandeh cranial capacity is also greater. Relationship with the Masai is suggested by certain cranial characteristics of the Azandeh. In the Monbottu and Bari crania the glabella and superciliary ridges are conspicuously absent, and only slight in the Azandeh. The skull of the Bambute pygmy agrees in many respects with those of the Akkas studied by Flower.

Staudinger (P.) Ueber einen künstlichen Kopf von den Ekhois (auch Khois) im nordwestlichen Hinterlande von Kamerun. (Verh. d. Berl. Ges. f. Anthr., 1901, 533–534.) Brief account of an imitation of the human head in soft wood (with details of features, tattooing, etc.), not a mask, but probably used in connection with some fetish. It is a remarkable development of rude negro-sculpture. The people from whom it was obtained dwell in the Niger estuary.

White (F.) On the Khami ruins, Rhodesia. (Man, London, 1901, 101–102.) Brief account of Khami ruins near Buluwayo,—walls of granite blocks, enclosures, fortified knolls, heaps of débris (pottery, implements, etc.), numerous circles or walls of burnt clay (indicating huts),—the style of the native dwellings at the present day is quite similar. The author recognizes three stages of culture at Khami: Stone age anterior to the ruins, the civilization of the ruin-builders (ancient gold industry), and that of the builders of the clay dwellings.

Asia

Aiken (C. F.) The ancient Christian monument of Hsi-an-fu. (Cath. Univ. Bull., Washington, 1902, VIII, 175–192.) Historical description. The author believes the monument to be genuine. It was erected probably 780–783 and proves Nestorian influence in the Celestial empire. The inscriptions upon it tell of the introduction of a new religion from the west.

Balfour (H.) A spearhead and socketed celt of bronze from the Shan states, Burma. (Man, London, 1901, 97–98.) Brief description with plate. The spearhead was found in the bed of a tributary of the Mekong about 1876, the celt in the bed of a stream running into a tributary of the Salween. Such objects are rare in S. E. Asia. Both specimens are in the Pitt Rivers Museum, Oxford.

Belck (W.) Ueber Alterthümer in Amasia, Klein-Asien. (Verh. d. Berl. Ges. f. Anthr., 1901, 449–452.) Account of the investigations by Hr Max Zimmer of the so-called "royal" graves at Amasia in Asia Minor, with 6 text-figures. The graves are probably ancient Greek, the rock-wall figures Armenian.

—— Forschungsreise in Klein-Asien. (Ibid., 452–522.) In this article, with 32 text-figures, Dr Belck writes of the cuneiform inscription of Hassankala (Pasinlêr), the ruins of Amasia and neighboring places, the remains of the

Belck—*Continued.*
cyclopean wall of Boyuk Kala, the great temple at Boghazkoi, the ruins of Kara Uyuk, Hittite inscriptions, the so-called "troglodyte-country" west of Cæsarea, etc. Budak Owa and the surrounding country seem to have been a Hittite kingdom afterward destroyed by the Cimmerians *ca.* seventh century B.C. The rock-dwellings were originally occupied by a "Turanian" people.

Crowfoot (J. W.) A Yezidi rite. (Man, London, 1901, 145–147.) An inquiry into Armenian stories about the Yezidi of Asia Minor, particularly the Melek Taus ceremony. Mr Crowfoot thinks that Taus may be a form of Tammuz. Certain relations between the Yezidi and the Takhtadji of Lykia are suggested.

Danjou (*Dr*) Sur le crime rituel. (Bull. et Mém. Soc. d'Anthr. de Paris, 1902, v^e^ s., III, 69–75.) The author gives an account of the assassination of P. Thomas at Damascus in 1840 and of the "ritual murder" of Henri Abdelnour, a boy of 7 years, attributed to the Jews. In the discussion, M. Girard de Rialle thought the author was too credulous and his statement that "ritual crime" was habitual in Syria was far-fetched.

Ethnographic Survey of India in connection with the census of 1901. (Man, London, 1901, 137–141.) Extract from Government Papers with outline of scheme recommended by the British Association for the Advancement of Science and approved by the Indian authorities, who have sanctioned an expendiure of not more than Rs. 1,50,000 for the survey. Messrs Thurston and Risley will be the chief directors. The survey is calculated to last four or five years and many valuable anthropometric and other data will be obtained.

van Gennep (A.) Origine et fortune du nom de peuple "Ostiak." (Keleti Szemle, Buda-Pest, 1902, 13–32.) Sketches, with bibliographical references, the history of the ethnic name *Ostiak*. After careful research the author concludes: The term *Ostiak* first appears in 1572 in a letter of Ivan the Terrible. It was first applied by the Russians to the population of the high valleys of the western slope of the Urals, and afterward to certain trans-Uralian peoples, as far as the Yenesei. It has not had a fixed ethnological value and is no fair argument as to the origin, relationship, and migrations of the peoples to whom it has been applied. None of the etymologies (Ugrian, Turko-Siberian, Turko-Kirghez, etc.) hitherto proposed is satisfactory. Up to the present the name *Ostiak* has been used to designate ten different groups of people. This essay is a model study in ethnic nomenclature.

Hill (E. J.) A trip through Siberia. (Nat. Geogr. Mag., Wash., 1902, XIII, 37–54.) Illustrated account of trip in July, 1901, by Amur river and Trans-Siberian railroad. Contains brief notes on some of the peoples of the country, — Cossacks, etc.

Hodson (T. C.) The native tribes of Manipur. (J. Anthr. Inst., Lond., 1901, XXXI, 300–309.) Treats briefly of the Meitheis, Kukis, Nagas, etc., particularly the Manipuris proper or Meitheis: Government, treatment of epidemics and droughts, clan divisions and taboo, evil spirits, priests, childbirth and naming, bride-getting, death and burial, seclusion, food-taboos, omen-taking, future life, rain-making, terrace-cultivation, etc. By language the Manipuris are closely allied to the Chin-Lushai-Kuki group, while "the people are in feature of the Mongoloid type, and in no way resemble the Aryan or Aryanized peoples of Hindustan." The position of "king" in Manipur is surrounded with "mysterious and interesting ideas and ceremonies," and the coronation of the Raja "is an imposing and interesting affair." Among the Manipuris "each year is named after some man, who (for a consideration) undertakes to bear the fortune good or bad of the year." He receives presents for a good year and, formerly, got into serious trouble for a bad one. The rain-making ceremony is often quite unique.

Huntington (E.) The prehistoric mounds of eastern Turkey. (Rec. of Past, Washington, 1902, I, 163–171.) Brief accounts, with 3 plates (2 figs.) and 2 text-illustrations, of mounds near Samsun, Marsovan, at Chorum,

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Huntington—*Continued.*
Kala Hissar, near Keikeniz Kala, of conical type (on hills); also truncated, unsymmetrically conical mounds (on plains) at Garmuri, Ichmeh, Telanzit, Tadem, Hokh, etc. The second sort of mounds are very abundant in the Haldi country, the region of Harput, the plain of Mush, etc. The first type seems to be "confined to the Hittite country west of the Euphrates," while the second is most abundant in the Haldi country, but "the two kinds occur together and cannot always be sharply distinguished." The mounds, which are quite uniform in shape, vary in size from one to six acres, and in height from 30 to 80 feet. During the Roman period (or later) "many of the mounds appear to have been utilized as sites for forts or other massive buildings," and sometimes circumvallated. On top of them (as at Hokh) ruined superstructures are found and Roman coins are occasionally unearthed. From the nature of a small mound at Ellimelik, it appears that some of these structures were, after being occupied some time, inundated by the lakes, etc., on whose shores they stood, and then re-occupied. Some may have been built for observational purposes. Belck thinks that some of them are the burial-places of the earliest Armenian kings. Some attribute them to the "Hittites." The author is of opinion that "the mound-builders were to some extent influenced by their neighbors in Babylonia or Assyria, or else immigrants from those countries invaded the northern region." The layers of brick in the mound at Hokh and the coffin-jars at Garmuri, — "both of which are distinctly characteristic of the Babylonian mounds," — are held to be proofs of this. In most of the mounds implements of stone and bone are found, together with bones and pottery fragments.

Rao (T. R.) The Yánádis of the Nellore district. (Bull. Gov. Mus., Madras, 1901, IV, 87–113.) General ethnographical account, — name, origin, physique, cranial and head-form, habitat and population, caste and ordeal, society, language, religion, marriage, child-birth, soothsayers, burial, personal habits and accomplishments, fishing and hunting, dance, folk-medicine, work and indolence, honey-gathering, crime (the Yánádis are no "criminal class," as once was believed), etc. The article is an M. A. thesis at the University of Madras. Pages 106–113 are by Mr K. Rangachari and treat of the house-names, production of fire (by friction), food, marriage-ceremony, menstruation, *chinnadinamu* and *peddanamu* funeral ceremonies, etc. The photographs from which the illustrations were made (plates VIII–XII) were also taken by Mr Rangachari. The Yánádis are a dolichocephalic, dark-skinned, short-statured people of Telugu speech and Hindu religion (rude and primitive). Morality is said to be "at a low ebb." Every village or circle has one or more soothsayers and the future is predicted in song. Burial is common, cremation rare. The dance is rude and "full of indecent suggestions." The attempt to make them work has not been a success. Their character is much better than formerly described. During 1881–1891 the Yánádis increased in numbers 34.6 %.

Reinach (S.) Les mythes babyloniens et les premiers chapitres de la Genèse. (L'Anthropologie, Paris, 1901, XII, 683–688.) Critical review of a recent work by the Abbé Loisy on "Babylonian Myths and the First Chapters of Genesis." The Hebrew version is but a memory of the old cosmogonical myths,— neither the mythological nor the poetic form survives in the Bible. The high moral cult of the Hebrews exploited them to its own profit. Legend was submerged in law.

Skeat (W. W.) Natural history and ethnography of the Malay peninsula. Report of the Cambridge Expedition to the Malay provinces of Siam. (Rep. Brit. Assoc., Lond., 1901, LXXI, 411–424.) The anthropological section treats of physical types, dress, ornaments, weapons, hunting and fishing, fire-making and cooking, implements, coins, weights and measures, trade, agriculture, metal-work (iron, copper, tin, gold, and silver), carpentry and cabinet-work, pottery, rope and string making, mats and basketry, spinning and weaving, prisons and torture, ceremonial rites and games, popular religion and folklore. An abstract of part of the Report is also published in *Man* (London, 1901, 177–180) under the title *Notes on the ethnography of*

Skeat—*Continued.*
the Malay peninsula, with 1 plate (6 figs.) and 2 text-illustrations. Two physical types are distinguished,—a taller whose build and stature, etc., "approach that of the Maori, and a shorter, of undoubted Malay stock. The cruel processes of torture and imprisonment under the old native law are passing away. An interesting relic of barbarism are the performances of the local "medicine men" or magicians, some of which are very impressive as burlesques. Far from believing the Malays to be "an essentially barbarous people," Mr Skeat considers that they "are essentially a soft-mannered people." Moreover, "the better class of them, i. e., the forest-dwellers as distinct from the town-dwellers, are not only often first-rate woodsmen, but naturally gentlemen, and most companionable, fond of their home and family, loyal to a fault to their natural chiefs, honest as any of our own peasantry, keenly alive to a sense of their own honor." He rightly refuses to think that such a race would necessarily be improved by "forcing it neck and crop into the strait-jacket of our own civilization."

Thurston (E.) The Dravidian head. (Bull. Gov. Mus., Madras, 1901, IV, 79–86.) Discusses briefly, with 2 plates and 6 tables of measurements, the form of head of the Dravidian tribes of the southern districts of Madras and of the Bellary district,—altogether 1176 subjects, including 82 Todas. The tribes of Bellary seem to be broader-headed than the others studied; only 2.1% of the Dravidians of the southern districts had a cephalic index exceeding 80, while 37.8 of the Bellary Dravidians had such an index. Another fact brought out is that, "so far from the Dravidians being separated from the Todas by reason of their higher cephalic index (as Taylor held), this index is, in the Todas, actually higher than in some of the Dravidian peoples." The general conclusion reached is that "the question of the type of the Dravidian head is not nearly so simple and straightforward as I had imagined."

—— Miscellanea. (Ibid., 114–128.) Brief articles on the couvade (114–117), measurements of 25 Koramas, albinos of Madras (118–120), earth-eating by natives of Cochin hills and Mysore, the Kathira or scissors people, the Toda petition for enjoining monogamy and for the prompt disposal of corpses, weighing-beams in Malabar, the Mannans of the foot-hills of Travaneore (126–128). A sort of couvade seems to have prevailed among the Koramas and some other people of southern India. Brief descriptions are given of four albinos of Madras and the fact noted of "a series of cases of albinism in 6 successive generations of a Tamil family." Earth-eating, chiefly by females, occurs on the Cochin hills and is common among the women of Mysore during pregnancy. The Mannans (of Tamil stock) are noted for "the readiness with which they fraternize with Europeans." Nephew-succession prevails among them. They are said to worship the sun.

Zaborowski (S.) Piège à puces du Yunnam. (Bull. et Mém. Soc. d' Anthr. de Paris, 1902, V^e^ s., III, 51–52.) Brief account of a flea-trap of bamboo with glue, used to put in bed, in one's clothes, etc., from Yunnan in southern China.

Indonesia, Australasia, Polynesia

Balfour (H.) Strangling-cords from the Murray river, Victoria, Australia. (Man, London, 1901, 117–118.) Brief account, with text-figure, of two rare "strangling cords" from the Watty-Watty or Litchoo-Litchoo tribe (extinct) of the Murray river, now in the Pitt Rivers Museum, Oxford.

Chamberlain (A. F.) The American Indian element in the Philippines. (Amer. Antiq., Chicago, 1902, XXIV, 97–100.) Gives list of cultivated plants introduced from America. Also refers to transportation of American Indian soldiers, slaves, and "criminals" under Spanish auspices.

Crump (J. A.) Trephining in the South seas. (J. Anthr. Inst., Lond., 1901, XXXI, 167–172.) Brief account, with 2 plates, of three cases of trephining (for injury from sling-stones, clubs, etc.) among the natives of New Britain, New Ireland, etc. The operation-mortality is about 20%, the "doctor" is the *tena-papait* or tribal shaman, who uses

Crump—*Continued.*
a piece of shell or a flake of obsidian. The operation is also performed for pressure on the brain, epilepsy, and the like. Idiocy sometimes results. In one of the New Ireland villages trephining has "become fashionable, and a handsome girl or boy is generally persuaded to submit to the operation as an aid to longevity." To Mr Crump's paper are appended detailed discussions of the specimens by Mr V. Horsley, with comparative references to Peruvian skulls, etc.

Dieseldorff (A.) Die petrographische Beschreibung einiger Steinartefacte von den Chatham-Inseln. (Ztschr. f. Ethnol., Berlin, 1902, XXXIV, 25–29.) Gives the results of the examination of the specimens (axes, chisels, knives, etc.) brought by Dr Schauinsland in 1897 from the Chatham islands, which have been otherwise studied by Dr Schurtz. Of the objects examined 1 is of limestone, 1 of gray flint, 4 of jasper, 10 of sericite shale, 40 of feldspar-basalt and 10 of micaceous basalt, 10 of nepheline basalt, 2 of hornblend andesite, 1 of trachyte, and 2 of trachytic or andesite tufa.

Edge-Partington (J.) An object of unknown use and locality. Native ornaments from the Solomon islands. Forgeries of New Zealand stone implements. The Australian ethnological expedition. (Man, London, 1901, 100, 116, 181.) Brief descriptions, with 3 text-figures, of a wooden object from Rotumah (?), stone armlets from New Georgia, etc., native money. Warns against the numerous forgeries of Maori polished stone implements. A letter from Professor Spencer reports success with the Kaitish natives.

Gray (J.) Measurements of Papuan skulls. (J. Anthr. Inst., Lond., 1901, XXXI, 261–264.) Gives tables of measurements of 124 skulls, of which all but 6 (from German New Guinea) are from the Purari delta and elsewhere on the shores of the Gulf of Papua. The presence of two maxima suggests the existence of two racial elements unless the disturbing element be due to female skulls. The range of the cephalic index is from 63.5 to 85.5.

Haddon (A. C.) A Papuan bow-and-arrow fleam. (Man, London, 1901, 145.) Brief description (with plate) of the method of drawing blood by bow-and-arrow (shooting the arrow repeatedly at the affected part), at Bulaa, in the Hood peninsula, Rigo district. The "secondary release" of Morse is employed. A specimen of this fleam from southern New Guinea is in the Pitt Rivers Museum at Oxford.

Hiller (H. M.) Manners and customs of the people of southern Borneo. (Bull. Geogr. Soc. Phila., 1901, III, 51–64.) Gives, with 3 plates (natives, houses, etc.), data obtained in 1897 among the Kyans, Punans, Bukits, Kenyahs, Bahaus, Pengs, Long Wais, Tunjungs, Kantus, etc. The ethnographical and natural history specimens obtained are now in the Museum of the University of Pennsylvania. Among the topics consided are the rites for appeasing or gaining the favor of the spirits of "a foreign country," food, head-hunting (*pantang-naioh*) now rare, — purchasing old heads from other tribes is a ruse sometimes adopted to hoodwink the spirits,— primitive industries, children, community-houses, consulting of omens, ideas of the after-life and the departure of the soul (mobile log-bridge, etc.), the other world, etc. For any man who "refuses to get married" there is a "second and final death (his soul is devoured by a huge fish) from which there is no resurrection." Slavery among the Borneans is not such a hardship as it is in a civilized country. In matter of population the Kyans hold their own, while the Kantus and Ibans are slowly increasing. No one tribe can be taken as a type.

Hose (C.) *and* **McDougall** (W.) The relations between men and animals in Sarawak. (J. Anthr. Inst., Lond., 1901, XXXI, 173–213.) Details, with 2 plates, the animal-superstitions of the Kenyahs, with résumés of similar customs and beliefs among the Kayans, Kalamantans, Punans, and Ibans or Sea Dayaks (particularly those of the last relating to the *nyarong* or "spirit helper"). Among the topics treated are the cult of the hawk and other omen-birds (spider-hunter, trogan, woodpecker, hornbill, etc.), the pig ("plays a part in almost all religious ceremonies"), the domestic fowl (connected with capture of wandering souls), the crocodile, the dog, deer and cattle, tiger-cat, monkeys, etc. The gen-

Hose—*Continued.*
eral religious ideas of the tribes in question are noted, and the particulars of a number of omen-ceremonies given. The Ibans "have numerous animal fables that remind one strongly of Æsop's fables and the Brer Rabbit stories of the Africans,"—the land-tortoise and the tiny mouse-deer figure in them as "cunning and unprincipled thieves and vagabonds that have the laugh against the bigger animals and man." They have also "a greater variety of myths and extravagant superstitions than have the Kenyahs and Kayans. The "spirit-helper" (a nagual-like idea) institution is important for the Ibans, but rare with the other peoples. The authors' conclusions are given at some length (pages 202–213). They are of opinion that "the various superstitions entertained by these tribes in regard to animals are not to be looked upon as survivals of totem-worship." A simpler and more satisfactory explanation is the development of totemism from the varieties of the *nyarong*.—a view similar to those of Dr F. Boas and Miss Alice Fletcher concerning the totemism of the Indians of British Columbia and the Omahas.

Jordan (D. S.) On certain problems of democracy in Hawaii. (Out West, Los Angeles, Cal., 1902, XVI, 25–32, 139–149.) Illustrated general discussion of political and ethnic conditions. The author concludes that "if Congress favors the Hawaiians or Americans or both, at the expense of the still more numerous Orientals, it casts aside the spirit of democracy."

Laville (A.) Sur le caractère de certaines canaques. (Bull. et Mém. Soc. de Anthr. de Paris, 1901, Ve S., II, 589.) Brief notes, from a letter of M. Mazagot, on the natives of New Caledonia, a cocoanut carving of a deity, shamans, etc. There are said to be three types distinguishable by language, habits, etc.

MacKinlay (W. E. W.) Memorandum on the languages of the Philippines. (J. Anthr. Inst., Lond., 1901, XXXI, 214–218.) Brief notes on the general characteristics of Tagalo, Visaya, Bicol, Ilocano, Cayagan (Ibanag), Pampango, Pangasinan, and Calamiano, the eight "cultured and advanced languages," now written (besides their ancient alphabets) in Roman letters; the four groups of languages of uncivilized and savage tribes,—northern Luzon, Mindanao-Joló, Negros-Mindoro, Palawan (here also is the Tagbanua with its native alphabet),—Joló an and certain Mindanao tongues are written in an alphabet of Arabic origin. The author counts in the Philippines "8 tongues spoken by the civilized races and about 60 dialects of the savage mountain tribes,"—exclusive of the speech of the few Negrito tribes. Bicol "can be said to differ from Tagalo and Visaya as English and Scottish do." To this paper are appended the cardinal numerals 1–10 in Tagalo, Visaya, Bicol, Pampango, Malay, Pangasinan, Ilocano, Maguindanao, Ibanag (Cayagan), and Bagobo. Batac in the Palawan-Basilan group is stated to be "an exotic in the Philippines, and is used by the descendants of quite recent immigrants from Sumatra." The author's estimate of 60 for "dialects of savage mountain tribes" is much too high.

Mathews (R. H.) Ethnological notes on the aboriginal tribes of the Northern Territory. (Proc. & Trans. R. Geogr. Soc. Australasia, Brisbane, 1901, XVI, 69–90.) Deals briefly with the social organization, rites and customs, etc., of the native tribes of the Northern Territory of South Australia. A vocabulary of the Chingalee dialect is added, with a brief appendix on the rock-carvings on Burnett river, Queensland. Among the natives in question every tribe consists of two phratries, each divided into four sections, eight divisions in all. All children born into the tribe bear the name of one of these and also that of some animal, plant, or inanimate thing, their totem. Among the men and women of his tribe every person is further distinguished from the rest by an individual name; he obtains also a secret name known only to the initiated. He has further a "titular" name referring to his initiation-degree, a "relationship" name, etc. In general children inherit the totem of their male parent. The marriages take place according to a "direct," an "alternative," and a "rare" classification. (Numerous tables of marriages are given.) The initiatory rites of circumcision and subincision are in vogue all over the northern territory except a part of the Northwest. An interesting

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Mathews—*Continued.*
fashion of trapping hawks is described on page 77. Methods of fishing are also noted. Other topics treated of are yam-sticks, food, wind-breaks, water-bags, wooden vessels, sandals, shoes, feather-tufts, incantations, shamans, weather, points of the compass, rock-paintings, the *jarrada* method (capture) of securing a wife, burial and death - retaliation (*warring - arree*), "rain - making," trading, weapons, scarification, cannibalism (found all over the territory). Mr Mathews thinks that the totemic laws of descent may turn out to be more fixed than appears on present evidence. The vocabulary on pages 87–89 consists of *ca.* 200 words. This article contains a mass of interesting information.

—— Some aboriginal tribes of Western Australia. (J. & Proc. R. Soc. N. S. W., Sydney, 1901–2, XXXV, 217–222.) Discusses briefly the rules of marriage and descent, gives a list of totems, the names of the points of the compass, short account of language, etc., of certain tribes inhabiting the vast regions about the sources of Fitzroy, Margaret, and Ord rivers. The eight-section name-system is common among the tribes in question. The 8 points of the compass "are so familiarly fixed in their minds that in directing another person where to find anything, they call out the compass point in the most natural manner." A legend of these natives attributes the saltness of certain lakes to the urine of a serpent-monster, who made all the rivers. The vocabulary given belongs to the Kisha dialect, of Hall's creek. Circumcision and subincision are in vogue among all the tribes here considered. Like the aborigines of the Northern Territory, they also use the *mirralu* (ornamented flat board) in ceremonial and magic dances.

—— The Thurrawal language. (Ibid., 127–160.) Besides a valuable résumé of the characteristics of the Thurrawal (once spoken over the southeast coast of New South Wales from Port Hacking to Jervis bay) this paper contains a brief account of the Gundungurra (spoken to the west of the Thurrawal) and the Dharnik (spoken to the north), with a vocabulary of the last language on pages 157–160. With respect to the Thurrawal, orthography, nouns, adjectives, pronouns, verbs, prepositions, adverbs, conjunctions (very few), interjections and exclamations, numerals, etc., are treated. What Mr Mathews considers a new fact is that in Thurrawal "many of the nouns, adjectives, prepositions and adverbs,—in addition to the verbs and pronouns,—are inflected for number and person,"—something not hitherto reported from Australia.

—— The Thoorga and other Australian languages. (Amer. Antiq., Chicago, 1902, XXIV, 101–106.) Brief grammatical sketches of the Thoorga language of New South Wales and of the Thurrawal. The Thoorga has an inclusive and an exclusive plural, besides "the inflection of almost every part of speech for number and person."

Rivers (W. H. P.) On the functions of the maternal uncle in Torres strait. (Man, London, 1901, 171–172.) The maternal uncle and nephew are nearer akin, according to the views of the western tribes of Torres strait, than are father and son. The maternal uncle can stop a fight by a mere word, and at the initiation-ceremonies he has control of the boy. The nephew may despoil his maternal uncle of anything he wishes (cf. Fijian *vasu*). Rivers considers that these customs, found in a tribe with paternal descent, are probably "vestiges of a previous condition in which descent was maternal, and the brothers of the mother were regarded as nearer kin than the father." See also *Rep. Brit. Assoc.*, Lond., 1901, LXXI, 800.

—— On the functions of the son-in-law and brother-in-law in Torres strait. (Ibid., 172.) The son-in-law may not utter the names of his wife's relations and can only speak to his father-in-law through his wife. The brother-in-law can stop a fight (but his power is less than that of the maternal uncle), he attends to the funeral ceremonies when a man dies, has certain duties in connection with fishing, and has a fixed place in the canoe. At a dance a man must wear his brother-in-law's mask. These customs Rivers regards as "vestiges of a condition in which a man lives with and serves the family of his wife."

—— Some emotions of the Murray islander. (Rep. Brit. Assoc., Lond.,

Rivers—*Continued.*

1901, LXXI, 801–802.) Such differences as exist are due to "varying sanctions of society (customs) rather than to distinctive mental constitution." The general condition of the Murray islanders is about that of the rural population of southern Europe or "any other simply emotional country folk." Lack of concentration is not a feature of these uncivilized races. The play of shame seems to have lessened the force of parental affection. Great differences of temperament occur. The expression of the emotions is "in no way different from what has been observed among Europeans."

Rosenhain (W.) Notes on Malay metalwork. (J. Anthr. Inst., Lond., 1901, XXXI, 161–166.) Treats, with two plates, of the making of a Malay *kris*, Malay goldsmith's tools, vessels of copper and white metal, *cera perduta* process, Malay lathe, chains made by casting. The specimens upon which the article is based were obtained by Mr W. W. Skeat in his recent expedition in the Malay peninsula. The Malay smith's tools "are simple and of a somewhat primitive construction, but do not differ very much from those to be found in a European smithy." The *kris*-making is described in detail. The microscopic examination showed that the laminated scroll is made up of layers of one kind of metal only. Much of the goldsmith's work is wrought (hammered, filed, chiseled, embossed). The hollow copper vessels are cast by a method recalling the ancient European *cera perduta* process. Casting chains is a striking feat of Malay metalwork. The process is simple and known to the women, but "the design and workmanship of the mold are proofs of great mechanical skill and ingenuity."

Schurtz (H.) Stein- und Knochengeräthe der Chatham-Insulaner, Moriori. (Ztschr. f. Ethnol., Berlin, 1902, XXXIV, 1–24.) Treats, with 5 plates (87 figs.), of the stone clubs, axes, and other implements, clubs, hooks, spearpoints, etc., of bone from Chatham islands, the home of the Moriori. An account of the islands and their now nearly extinct inhabitants is also given. Dr Schurtz concludes that "the culture of the Chatham islands is an outline of that of New Zealand, whose peculiarities result chiefly from local differentiations favored by the seclusion and poverty of the area in question." The influence of the dark pre-Maori population, still quite noticeable in New Zealand, is proportionately more marked on the Chatham islands. The stone-clubs of the Moriori are more like the older Maori clubs. Their curved clubs are possibly of Melanesian ancestry. The best axes of the Moriori equal in polish those of the Maori. Among the specimens figured is a club of whale's bone. Some of the hooks are peculiar to the Moriori.

Shelford (R.) A provisional classification of the swords of the Sarawak tribes. (J. Anthr. Inst., Lond., 1901, XXXI, 219–228.) Brief descriptions, with 2 plates, of the varieties of the *parang* or sword of natives of Sarawak, Borneo: *parang ilang* (of Kayans and allied tribes); *niabor* (the characteristic sword of the Sea Dayaks); *langgai tinggang* (a *niabor* with the handle of a *parang ilang*,—a Sea Dayak weapon); *jimpul* (of recent origin, hybrid between the *parang ilang* and *langgai tinggang*); *bayu* (a Sea Dayak *parang* of modern origin); *pakayun* (the very characteristic *parang* of the Muruts); *parang pedang* (used by Malays and Milanos of the coast for jungle-felling, etc.); *latok* (of recent use by Malays and Milanos); *buko* (the sword of the Land Dayaks); *pandat* (the war-*parang* of the Land Dayaks). The *kris* and the *kompilan* are also met with in Borneo. Some of these swords, although intended primarily for use in warfare, "may also serve as agricultural implements or as carpentering tools, or *vice versa*."

Starr (F.) The Australian Museum. (Amer. Antiq., Chicago, 1902, XXIV, 93–96.) Brief account, with 2 text-figures, of the Ethnological department of the Australian Museum at Sydney, N. S. W. (founded in 1836). Perhaps the most unique specimens are the carved tree-trunks. An ethno-botanical collection is being developed, also an ethno-conchological. Mr Etheridge, the curator, is also having made a collection of life-molds of the body scarifications of the aborigines. The "Cook relics" are also in this Museum.

Thomson (B.) A stone celt from Tonga. (Man, London, 1901, 134–135.) Describes briefly, with 2 text-figures, a

Thomson—*Continued.*
celt of olive-green stone of the shape and finish of the New Guinea celt, an heirloom in the family of the king's father. It is clearly exotic but of uncertain date.

AMERICA

Baessler (A.) Goldene Helme aus Columbien. (Ethnol. Notizbl., Berlin, 1901, II, Hft. 3, 30–33.) Brief account, with 2 plates and 1 text-figure, of two pre-Columbian golden helmets from a grave in the San Francisco district, Department of Cauca, Columbia. Only four other such helmets (in the possession of the King of Spain) are known. The helmets (572 and 576 gr. in weight) are of 18 to 19 carat gold plate. Both are artistically worked, one more than the other. On one is the upright figure of a woman. The grave was probably that of a chief of importance.

Boas (F.) Some problems in North American archæology. (Amer. J. Archæol., Norwood, Mass., 1902, VI, 1–6.) The archeology of America (with the exception of parts of Mexico, Central America, and western South America) deals with "peoples unfamiliar with the art of writing, whose history is entirely unknown." Dr Boas calls attention briefly to the archeological problems of the Pacific coast, where there are "four fundamental types of culture,"—the Eskimo of the Arctic, the Indian of Alaska and British Columbia, the Columbia river, and the California. The diversity of physical types here is very ancient. The modification of Alaskan Eskimo culture by that of the Indians, the new-arrival character of the Tsimshians, etc., the Columbia river as route for eastern influences on the coast, northern coast tribes' influence upon the Salishan stock, the recent intrusive character of the Eskimo in Alaska, the curious distribution of pottery on the Asiatic and American shores of the North Pacific (suggesting an early connection between the peoples of these districts), etc., are briefly referred to. The investigation of the Alaskan area is "one of the important problems of American archeology." Archeology in America must be pursued hand in hand with ethnological and linguistic methods.

Brant-Sero (J. O.) Dekanawideh; the law-maker of the Caniengahakas. (Man, London, 1901, 166–170.) Brief account of the unwritten law and government of the Caniengahakas (better-known by the nick-name of Mohawks), as given to them by Dekanawideh, "probably ages before the era of Hiawatha," who founded the confederacy. Among the topics treated are: the evolution of the idea in the mind of Dekanawideh, with the principle of placing "the mothers of the nation" in supreme authority; female totemic councils; gentes; "owners of titles"; council-fires and mode of procedure thereat; hereditary system; ceremonies. The principal position in the council was occupied by the *turtle* ("the fountain of thought, goodness, and restricted authority"), while the *wolf* "occupied a position equivalent to that of the 'opposition' party." The *bear* was "speaker of the house" and record keeper. The Mohawks, the author tells us, are of all peoples in the world the most "indifferent to the perpetuation of their individual memories," and "no man or woman among them expects more glory than that which arises from a consciousness of having done a duty to the best of their individual ability." Mr Brant-Sero, who is a Canadian Mohawk, adds another to the suggested etymologies of the word *Iroquois*. This is *I-ih rongwe*, "I am the real man," from *I-ih*, "self," and *rongwe*, "man" in Mohawk. This is quite plausible—*I-ih rongwe* could easily become *Iroquois* (pronounced at first *Irôkwē*, afterward *Irôkwâ*).

Brown (C. E.) Pierced tablets or gorgets in the W. H. Ellsworth collection at Milwaukee. (Wisc. Archeol., Milwaukee, 1902, I, 37–41.) Brief account, with plate (11 figs.) of 7 one-hole and 4 two-hole "gorgets," typical Wisconsin forms. The material is probably found in the state, although the opposite opinion has been commonly entertained.

Dorsey (G. A.) Hand or guessing game among the Wichitas. (Amer. Antiq., Chicago, 1901, XXIII, 363–370.) Describes game as observed by author,—"played in a spirit entirely different from that ever seen by me before among the western tribes." The objects used (the counting sticks, in particular) were

Dorsey—*Continued.*
also entirely different. Six sets of objects used and two drums are briefly described, with 3 text-figures. With the Wichitas the things of chief concern are the counting sticks, not the objects to be hidden, as is the case with most of the other plains tribes, quite unpretentious things being often used. The drums, which are painted symbolically, are employed also in war-dances. The participation of women in the religious elements of the game and the sedate and dignified character of the performance convinces the spectator that "a deep religious significance underlies at least one of the games of the American aborigines."

Early Western History—from documents never before published in English. (Out West, Los Angeles, Cal., 1902, XVI, 56–59, 293–296.) Critical translations of letters of Fray Juan Crespi, Fray Francisco Palou, and Miguel Costanso dated in 1772; and of the diary of Father Junipero Serra, March 28–June 30, 1769. These documents contain a few notes on the Indians of the country.

Fewkes (J. W.) Sky-god personations in Hopi worship. (J. Amer. Folk-Lore, Boston, 1902, XV, 14–32.) Treats, with 2 plates, of the dramatization of the return of the sun-god in the *Powamû* festival at Walpi in 1900, the actions of the man personating the sun-god, the departure of the clan-ancients, the germ-god Masauû, the *Pamûti* festival at Sichomovi, sun-god personations as masked dancers, the sky-god as a bird-man, the *Shalako*—representation of sun-gods, the winter-solstice dramatization of the advent and departure of the sun-god, the personation of a sun-god wielding lightning, idol of the sky-god with lightning symbols, etc. According to Dr Fewkes a composite picture of the various personations of the sky-god "reveals a being of bird and human form, bearing lightning and rain designs or symbols of the same import." This concept, the author "is tempted to regard as universal among races in the environment of agricultural culture." Dr Fewkes believes that "myth and ritual arose and developed simultaneously," and also that, "in early stages the existence of one implied that of the other, but ritual, which among primitive people is made up largely of personations of supernaturals and dramatizations of their acts, has furnished much of the material from which complicated mythologies have developed."

Frazer (J. G.) Men's language and women's language. (Man, London, 1901, 154–155.) Brief note supplementary to author's paper in *Fortnightly Review* for January, 1900. Cites evidence from D'Orbigny concerning the Chiquito Indians.

Gerend (A.) Archeological features of Sheboygan county. I. The village sites. (Wisc. Archeol., Milwaukee, 1902, I, 13–21.) Treats, with 6 text-figures, of Sheboygan village and New Amsterdam sites (largely from personal observation), and the objects (flints, fragments of pottery, copper implements, etc., bone awls, harpoons, etc., human skeletons). According to the author, "the ancient village sites of Sheboygan county appear to form a part of an uninterrupted series of similar settlements each about a day's journey apart along the lake beaches." Grooved stone axes and celts are rare. Bone implements are not very common. The pottery found indicates great ability in workmanship. Some 25–50 skeletons have from time to time been found. At New Amsterdam, "the sands were in places strewn with the intermingled bones of men and beasts to such an extent that wagon-loads might have been removed without its making any great difference in the quantity." The pottery here is thicker, wider, and less artistic. The inhabitants of Sheboygan county at the coming of the whites were Potawatomis, Sauks, and Foxes.

Hamilton (H. P.) Copper implements. (Wisc. Archeol., Milwaukee, 1902, I, 7–11.) Brief account, with one page illustration, of copper implements, ornaments, and chips from ancient village sites. The fact that "many of the copper implements have the same amount of oxidation and also the same general appearance of those so-called pieces of float copper," leads the author to remark that "the time required for this corrosion must have been much the same to produce the same results, and it opens a startling line of conjecture."

XUM

Hartman (C. V.) Arkeologiska undersökningar på Costa Ricas ostkust. (Ymer, Stockholm, 1902, XXII, 19–56.) In this article, with 10 plates and 37 text-figures, the author describes his investigations on the east coast of Costa Rica, near Mercedes. The temple-mound and walls, graves (14 in 3 groups), a find in the wood near the temple-mound, a place for making idols, mortars, etc., at Mercedes, a group of graves at Williamsburg, and other remains at Siquirres, Sta Rosa, Guasimo, and Jimenez are discussed, the first and second with considerable detail and list of objects found. At the foot of the temple-mound and on the river bank at Williamsburg carved stone figures of men and animals were discovered, while at Mercedes there were uncovered a considerable number of basalt idols and fragments,—the place having evidently been a "factory" for such objects. At Williamsburg some rock-carvings were found. Many tripods and clay vessels of various sorts, some axes, and other objects in stone and clay were discovered. The ornamentation figured on pages 46–47 is of interest.

Hawtrey (S. C.) The Lengua Indians of the Paraguayan Chaco. (J. Anthr. Inst., Lond., 1901, XXXI, 280–299.) Treats, with 7 plates (figuring natives, houses, dress, pottery-making, games, dances, weapons, vessels and ornaments, musical instruments, etc.), of the location of the Lenguas, their physical type, clothing, personal ornaments, painting, tattooing, habitations, weaving, basket-work, string, leather, pottery, dyeing, fire-making, conservatism, writing, "cat's cradle," ornament, food, tobacco, religion, mythology, superstitions, magic and witchcraft, customs, government, music, language, history, archeology, hunting, training of animals, infanticide, burials, numerals and counting, games, feasts and dances, contact with civilized races. The paper is also accompanied by a sketch-map and 4 text-figures. The Lenguas are "a nomadic and peaceful tribe,"—by language seemingly cognate with the Tobas, Matacos, etc. The author remarks that "the facial type presents occasional similarity to the North American or even to the Mongolian type," but the "common type" given on plate XXXV is Amerindian enough. The neighbors of the Lenguas are the Suhin on the west and the Tóóthli on the southwest, the former more agricultural, the latter more warlike. The data here published were obtained during a residence of four years among the Lenguas. Tattooing with the Lenguas is confined to the face and is more common among women. Weaving is done by all the women; string from caraguata-fiber is made by both sexes. The Lenguas are very clever at cat's cradle. Clay pipes have been driven out since the entrance of the steel knife makes it more economical to have unbreakable ones of wood. The fire-stick is in use. The women still cut wool with knives. A sort of notched-stick "diary" is in vogue. Decorative art centers about pipes and "it is rare to find two pipes identically the same." Milk and mushroom are thought "unfit" for food. A marked fear of *kilyikhama*, or spirits, prevails. They have many interesting mythological tales. Beetles, over whom the shamans exert great influence, figure much in the native superstitions and appear in the creation-legend. There is much etiquette in the reception of visitors, and the leave-taking reported on page 291 is worth noting. As to government, "the Lengua natives rule their lives almost entirely by public opinion." The chiefs are rather "fathers of the family." In general the Indians "are a reasoning and reasonable people, if treated as such." They are to us "decidedly unmusical." They still use the bow and arrow largely. Infanticide is still "quite common." The Lenguas can count up to 20, using fingers and toes. They have many games and dances,—one of the most characteristic is a sort of race-game with dice, called *hăstāwa*. Tops and dolls are known. The missionaries among the Lenguas are exercising wise discretion in the matter of "reforming" the natives. According to Mr Hawtrey, though good results in the matter of morality, manners, etc., are perceptible, "it is too soon yet to comment definitely on the effect of civilization on the Lengua Indians." This is a valuable paper.

Hearn (L.) The island and people of Martinique. (Nat. Geogr. Mag., Wash., 1902, XIII, 214–216.) Treats of houses, dress, etc.

Hill-Tout (C.) Communal houses in British Columbia. (Amer. Antiq., Chicago, 1902, XXIV, 107.) Extract from *Rep. Brit. Assoc.*, 1900, on dwellings of the Sk'qōmic.

—— Curious and interesting marriage customs of some of the aboriginal tribes of British Columbia. (Ibid., 85–87.) Brief account of wooing among the Yale and Squomish Indians. In the customs of the latter, now obsolete, a four-days' fast of the lover occurs.

James (G. W.) A Saboba origin-myth. (J. Amer. Folk-Lore, Boston, 1902, XV, 36–39.) Told by the oldest male Saboba Indian of southern California, whose portrait is given. Relates how Uuyot, the chief, under the guidance of "Siwash," the god of earth, led the Sabobas over-sea to their home on the coast. Uuyot can still be seen through the waters of the Great Bear Valley lake, where he lies buried.

Jenks (A. E.) The bear-maiden. (Ibid., 33–35.) A tale of the Ojibwa of Wisconsin, with some post-Columbian additions. Taken down in 1899 from an old woman. It is a version of the struggle between the earth (old woman and two daughters) and certain forms of light (little bear-morning star, etc.).

Keane (A. H.) Native American culture: its independent evolution. (Intern. Mo., Burlington, Vt., 1902, V, 338–357.) Reviews recent works of Payne, Seler, Thomas, Tylor, Brinton, Powell, Maudslay, Nuttall, and Dellenbaugh and résumés the evidence for the independent development of Amerindian culture of all kinds. Keane believes that America was reached in the Stone age by at least two streams of migration (N. W. Europe, N. E. Asia), but the subsidence of the land-connections then existing left the "Indians" to pursue their way as "an ethnic island." A few primitive devices and ideas they probably brought with them, but "American culture, properly so-called, was locally evolved, and owed absolutely nothing to extraneous influence." Mr Keane seems too much inclined to believe that this view of the matter was developed by himself and others before it was current in America.

Lawson (P. V.) The great serpent mounds at Menasha. (Wisc. Archeol., Milwaukee, 1902, I, 35–36.) Brief description with plan. The mounds represent "two reptiles apparently rushing towards each other." One of them has never been disturbed.

Logan (Margaret A.) The American Cadmus. (Out West, Los Angeles, Cal., 1902, XVI, 173–176.) Brief account of Sequo-yah, the inventor of the Cherokee alphabet, and the origin of this system of writing. In the council hall at Tahlequah in the Indian Territory there is a marble bust of Sequo-yah and the botanical name *Sequoia gigantea* of the "redwoods" of California keeps his memory green. He is also remembered in the name of the *Sequoya League*, "to make better Indians," an account of which is given in *Out West*, pages 297–302.

McGee (W J) Germe d'industrie de la pierre en Amérique. (Bull. et Mém. Soc. d'Anthr. de Paris, 1902, V^e^ S., III, 82–88.) Treats of the Seri Indians of the Gulf of California as typical of the beginnings of lithoculture. Food, social organization, stone industry, weapons, mentality and physical characteristics, etc., are briefly described.

Mills (W. C.) Excavation of the Adena mound. (Rec. of Past, Washington, 1902, I, 131–149.) Detailed account, with 8 plates (28 figs.) and 5 text-figures, of the excavation in the summer of 1901 of the Adena mound near Chillicothe, Ohio, by the author, who is curator of the Ohio State Archeological and Historical Society. Five sections were made, and all changes in the structure of the mound were photographed. The mound seems to have been built at two different periods, and of the 34 skeletons found 21 belonged to the first and 13 to the second. The soil of the first period was nearly all dark-colored sand, that of the second lighter-colored sand mixed with earth. The first period represented the original mound about twenty feet high, the second the other six. In the first period the burials were made in timber graves, in the second no such graves occurred. Other minor differences were also present. With some of the skeletons no implements or ornaments were found. Copper bracelets and rings, beads (of shell and bone), pieces of

XUM

Mills—*Continued.*
coarse cloth, gorgets, spearheads, flint-knives, bone awls, etc., are among the objects taken from the mound. Evidences of cremation occur, also burned mussel-shells and the bones of many animals. The tibiæ and fibulæ of one skeleton were painted red. Perhaps the most interesting object discovered at this mound was the effigy pipe figured on pages 147–148. These investigations are of special importance by reason of the care with which they were carried on.

Morice (A. G.) Carriers and Ainos at home. (Amer. Antiq., Chicago, 1902, XXIV, 88–93.) After discussing the etymology of the name "Carriers" (properly "packers"),—due to the custom of the widow "packing" about the charred bones of her late husband,—Father Morice compares the dwellings of the Carriers and the Ainos, their use of the dog, etc. The points of comparison are, however, of a general character. He holds that "in the cremation of the dog among the Carriers there was not the remotest idea of sacrifice." The treatment of dogs as if they were human beings has left its impress upon the language.

Muskat (G.) Ueber eine eigenartige Form des Sitzens bei den sogen. Azteken. (Verh. d. Berl. Ges. f. Anthr., 1902, 33–35.) Describes, with two text-figures, the peculiar fashion of sitting used by the so-called "Aztec dwarfs" (legs outward from knees at nearly right angles, soles, thigh, and backside on floor). This mode of sitting does not appear to be employed by the Aztecs or represented on their monuments, nor is it, so far as is known, in use by idiots. It resembles somewhat the *mimida rei* of Japanese children. The author asks for analogous facts.

Peabody (C.) Explorations in Mississippi. (Amer. J. Archæol., Norwood, Mass., 1902, VI, 28–29.) Brief account of the opening of two mounds in Coahoma county, and the remains found. The date is uncertain, for, "while part of these mounds are almost necessarily post-Columbian, some time may have elapsed between the beginning and completion of the works." Other smaller mounds formerly surrounded these large ones.

Peet (S. D.) Human figures in American and Oriental art compared. (Amer. Antiq., Chicago, 1902, XXIV, 109–124.) General discussion, with 13 text-figures. The art of the Pueblos, the peoples of Mexico and Central America, the ancient Peruvians, etc., is briefly compared with that of Egypt, Mesopotamia, etc. The author considers that Egyptian civilization did not reach as far as America. Certain features of art "are as peculiar to Central America as are the passive features of Buddha to the Buddhist art, and as are the heavily-bearded figures to the Babylonian art, or the conventional figures to the Egyptian art."

Porter (R. L.) The Cutler mounds at Waukesha. (Wisc. Archeol., Milwaukee, 1902, I, 41–42.) Brief note on "three prehistoric mounds, one of them being the largest I know of in southern Wisconsin." Efforts are in progress to have the city acquire them.

Purdy (C.) Pomo Indian baskets. (Out West, Los Angeles, Cal., 1902, XVI, 9–19, 151–158, 262–273.) Second, third, and fourth sections of an interesting and well-illustrated account of the basketry of the Pomos of California. In basketry these Indians "found an outlet for the highest conceptions of art that their race was capable of," and when the first white contact took place, "they had reached a height in basketry which has never been equaled—not only by no other Indian tribe but by no other people of the world in any age." Among the topics treated are: basket materials and technique, weaves (6 are common, 4 soft, 2 hard) and varieties of baskets, designs and ornamentation, uses of baskets (from fish-carriers to cradles), etc. According to Mr Purdy, no other people but the Pomos adorn their baskets with feathers. By "Pomo" baskets are meant "the baskets of all the 30 or more tribes grouped by Mr Powers under that name." All the Indian words (names of baskets and materials, technical terms, etc.) are from the dialect of the Ballo Kai Pomo of Potter valley, Mendocino county.

Raynaud (G.) Note sur le déciphrement des inscriptions précolombiennes de l'Amérique centrale. (Bull. et Mém. Soc. d'Anthr. de Paris, 1901, Ve S., II, 589–592.) After many years of study,

Raynaud—*Continued.*
the author claims that he "possesses, with scientific and mathematic certainty, the key to the deciphering of the pre-Columbian inscriptions of Central America." He does not disclose his method but states that it belongs in a way with the decipherment of diplomatic and military cryptograms. After "oiling and opening certain locks" M. Raynaud promises translations of inscriptions and codices.

Robinson (Ednah) Chinese journalism in California. (Out West, Los Angeles, Cal., 1902, XVI, 33–42.) Illustrated general historical account. It requires, we are told, 11,000 spaces to contain a font of Chinese type and a Chinese printer can arrange 4000 characters a day. It takes eight men through a twelve-hour day to set the type for "a modest four-page daily."

Seler (E.) Ein anderes Quauhxicalli. (Ethnol. Notizbl., Berlin, 1901, III, Hft. 1, 135–139.) Brief account, with 5 text-figures, of a *quauhxicalli*, or blood-receiver in the Vienna Museum. This specimen differs from the one in Berlin, in having no crown of hearts above the eagle-feathers.

Thompson (A. T.) The stone graves of Tennessee. (Amer. Antiq., Chicago, 1901, XXIII, 411–419.) Largely based on Jones, Thurston, and Putnam. The author details also his own recent examination of some of these remains near Nashville. A shell gorget found in one of the graves is figured on page 417.

Vogt (F.) Material zur Ethnographie und Sprache Guayaki-Indianer. (Ztschr. f. Ethnol., Berlin, 1902, XXXIV, 30–45.) General account, with 3 text-figures (men and children) and text-maps, of the Guayaki Indians of the Sierra de Villa Rica in Paraguay, their history, name and origin, weapons and implements, social life, religious ideas, industry, food, clothing, language (38–45). A vocabulary of de la Hitte's obtained in 1896–7 and one by the author taken down in 1901 are compared with the corresponding Guarani words, and a few observations on the language by Hr Koch are appended. The text of a brief war-song is given on page 43. Father Vogt considers that the number of Guarani words in the Guayaki vocabulary suggests relationship with that stock, while Dr Koch thinks the two languages are most closely connected. Family, rather than tribe, is the social nucleus. Their fashion of sleeping is very peculiar. The Guayaki are savages in the etymological sense of the term.

Wilcox (W. D.) Recent explorations in the Canadian Rockies. (Nat. Geogr. Mag., Wash., 1902, XIII, 141–168, 185–199.) Contains (194–195) some notes on the Stony Indians.

Wintemberg (W. J.) Some ceremonial implements from western Ontario, Canada. (Rec. of Past, Washington, 1902, I, 150–156.) Brief descriptions, with 2 plates (23 figs.) of bird-amulets, bar-amulets, banner-stones, boat-shaped amulets, gorgets (tablets, pendants), etc., from various sections of western Ontario. In this region, the country of the "Neutral Indians," these objects are found in greatest abundance, and the author is inclined to attribute them to "an earlier and, possibly, non-Iroquoian race," since on the sites of the "Neutral" villages very few of them have been found. Mr Wintemberg notes the resemblance between these amulets and the ivory images of birds used by the Eskimo in playing certain games. The reviewer suggests that if the Eskimo preceded the Indians who made these "amulets," they may be copies of a later date and perhaps for another purpose of Eskimo game-figures. But their use is still unexplained.

Woodhull (A. A.) Eine untersuchung über den Inhalt eines Mound-Schädels. (Verh. d. Berl. Ges. f. Anthr., 1901, 527–533.) Describes, with 5 text-figures, what appears to be the remains of the brains of a mound-builder from the Scioto valley, Ohio. The results of examination, analyses, etc., are given and comparisons made with the remains in the skulls of three Peruvian mummies and Petrie's Naqada "brain."

Zaborowski (S.) Photographies d'Indiens Huichols et Coras. (Bull. et Mém. Soc. d'Anthr. de Paris, 1901, V^e^ S., II, 612–613.) Brief notice of photographs of Huichol and Cora Indians taken by M. Diguet.

John Wesley Powell

March 24, 1834 = September 23, 1902

Major J. W. Powell, A.M., LL.D., Ph.D., soldier, man of science, administrative, died at Haven, Maine, of arterial sclerosis, at sunset on Tuesday, September 23d.

Born in Mount Morris, New York, John Wesley Powell dwelt in Ohio and Wisconsin with his father's family, and afterward settled in northern Illinois, where he received a collegiate education and entered on a professional scientific career. On the outbreak of the Civil War he enlisted as a private, and was promoted through several grades to that of Lieutenant-Colonel. He left an arm at Shiloh, but remained in the service until the end of the war, when he resumed professional work. In 1867 he took a class into the Rocky Mountain region, thus inaugurating the summer-school system. In 1869 he led a party through the Grand Cañon of the Colorado in one of the most remarkable exploring trips ever made in North America. This exploration grew into the United States Geographical and Geological Survey of the Rocky Mountain Region, of which he was made Director; in 1879 this Survey was merged with three others in the United States Geological Survey, while the ethnologic work of the Powell survey was taken up by the Bureau of Ethnology, created at the same time with Major Powell as Director. In 1880 he became Director also of the United States Geological Survey, which position he filled until 1894; subsequently he devoted himself to ethnologic researches.

Major Powell was prominently connected with many scientific

organizations. He was the leading founder and first President of the Cosmos Club of Washington, in 1878, and of the Anthropological Society of Washington in 1879, and one of the founders of the Archæological Institute of America in the latter year; he was President of the American Association for the Advancement of Science in 1888. At the time of his death he was Director of the Bureau of American Ethnology, a Vice-President of the American Anthropological Association, an editor of the *American Anthropologist*, an editor of *Science*, a trustee of Columbia University, and a member of many executive boards of scientific societies.

A fuller notice of Major Powell's life and work, especially in the field of anthropology, will be presented in a forthcoming number of this journal.

ANTHROPOLOGIC MISCELLANEA

Glacial Man in Kansas.—Two miles southeast of Lansing, Kansas, and about twenty miles northwest of Kansas City, a human skeleton was found last spring by farmers in digging a long tunnel excavation for use as a dairy cellar. Soon after the discovery, the place was visited by M. C. Long and Edwin Butts, of Kansas City, the former being curator of the public museum there, for which they obtained the skeleton. Mr Butts, a civil engineer, made measurements of the excavation, which extends 72 feet into the bluff. Its floor is a nearly level stratum of carboniferous limestone; and its lower part consists of débris of limestone and earth, while its upper part is the fine calcareous silt called loess. The skeleton was found mostly in a disjointed and partly broken and decayed condition, at the distance of 68 to 70 feet from the entrance of the tunnel, about two feet above its floor, and 20 feet below the surface of the ground exactly above it. Half of the lower jaw was found ten feet nearer the entrance, and a foot lower, than the principal parts of the skeleton, including the other half of the lower jaw.

About a month ago this locality was carefully examined again by Mr Long and Prof. S. W. Williston, of the Kansas State University, and the latter wrote a short article, "A Fossil Man in Kansas," which was published in *Science*, August 1. Before this article appeared, newspaper accounts had been seen by Prof. N. H. Winchell, of Minneapolis, and by myself in St Paul, which had led us to plan a journey to Kansas, partly for the purpose of examining the Lansing skeleton and the drift section in which it was discovered. We accordingly visited this tunnel excavation, at the house of Martin Concannon, on Saturday, August 9. Professors S. W. Williston and Erasmus Haworth, of the Kansas State University, and M. C. Long, Sidney J. Hare, and P. A. Sutermeister, of Kansas City, accompanied us. Mr Concannon, owner of the farm, and his sons, who dug the tunnel and found the skeleton, were also present and explained again all the circumstances of their discovery.

The entire section of the tunnel, which is about 10 feet wide, 7 feet high with arched top, and 72 feet long, was examined; additional bones, as of the hands and feet, were found in the dump outside; and the skeleton, in Kansas City, was inspected. According to Professor Williston's measurements of the bones, the fossil man was about five

feet eight inches in stature, and was probably more than fifty years of age, as estimated from the worn condition of the teeth. The skull is dolichocephalic, with receding forehead, strongly developed supraciliary ridges, and a markedly prognathous face and chin. Most of the vertebræ and ribs are wanting, probably because of their decay previous to the deep inhumation by the overlying loess.

The skeleton lay in the upper part of the earthy débris, which included many small limestone fragments and some as large as two or three feet in length. Just above it, at an irregular line a few inches to a foot higher, a horizontally stratified water deposit of fine loess begins, forms the upper two thirds of the tunnel, and extends up to the surface 20 feet above the place of the skeleton. The loess continues up to Mr Concannon's house, which is about 100 feet distant, on a slight terrace, about 35 feet above the horizon of the skeleton, and 47 feet above the level reached by the adjoining Missouri river at its highest flood since Mr Concannon's settlement here thirty-five years ago. This flood, in 1881, was 25 feet above the lowest stage of the river, which is 735 feet above the sea. The carboniferous limestone outcrops about 50 feet southeast of the house, and rises gradually in a spur ridge southeastward to a height of 150 feet or more above the river.

Within a quarter of a mile southward, and also within half a mile to the west and northwest, the loess forms uplands about 200 feet above the Missouri; and at the end of the loess deposition it doubtless stretched as a broad floodplain, 200 or 250 feet above the present river level, across the Missouri valley, which has been subsequently reëxcavated. The skeleton appeared to all our party to have been entombed at the beginning of the loess deposition, which would refer it to the Iowan stage of the Glacial period, long after the ice-sheet had receded from Missouri and Kansas, but while it still enveloped northern Iowa and nearly all of Wisconsin and Minnesota. In other words, it belonged to a time before the prominent moraines of these last-named states were formed on the borders of the waning ice-sheet. The very old Kansas glacial drift, including many bowlders of the red Sioux quartzite, is very thinly spread on this northeastern part of Kansas, under the loess, and reaches about thirty miles south of Lansing, terminating along an east to west boundary 12 to 15 miles south of the Kansas or Kaw river.

The loess and the Lansing skeleton are of Late Glacial age, but are probably twice or perhaps three times as ancient as the traces of man in his stone implements and quartz chips occurring in glacial gravel and sand beds at Trenton, N. J., and Little Falls, Minn. In the Somme

valley and other parts of France, as also in southern England, stone implements in river drift prove that man existed there before the Ice age, that is, probably 100,000 years ago, or doubtless four or five times longer ago than the date of the skeleton at Lansing, Kansas.

WARREN UPHAM.

Guido Boggiani.—Word has been received through the public press of the death, presumably at the hands of the Tobas Indians, of Prof. Guido Boggiani and his party in the Gran Chaco, South America. Professor Boggiani started from Asuncion, Paraguay, early in the present year, with six Indians and a peon, for the purpose of exploring this almost unknown region. Only once after his departure was news received from him, brought by two members of his party who had found their way back. A small party, sent out from Puerto Casado in the hope of gleaning news of Boggiani, returned with the report that he had suffered death. Professor Boggiani was an Italian by birth who had spent several years in studying the aborigines of Paraguay. His beautiful monograph on the Cadiuéios Indians, published at Rome, in 1894, under the title *Viaggi d'un artista nell' America Meridionale. 1. Caduvei (Mbaya o Guaycuru)*, has been most favorably received.

Rudolph Virchow.—Dr Rudolph Virchow, the distinguished anthropologist and statesman, died in Berlin on September 5, in the eighty-first year of his age, and was buried with public honors in the same city on Tuesday, September 9. There were present members of the German cabinet, distinguished city officials, officers and professors of universities, and leading men in the scientific societies of Berlin and other cities. It is difficult to dissociate his scientific work from his public services. He stood in the same relation to anthropology in Germany as did Major J. W. Powell in America, enriching every branch of science by his own researches, but at the same time fighting the battle of science in the legislature. It is hard to say in which capacity he did his country and our special study the greater favor. Dr Franz Boas, who was personally acquainted with Dr Virchow, publishes in *Science* for September 19 an extended account of his work, from which the following extracts are taken.

"In Rudolph Virchow science has lost one of its great leaders, Germany one of her great citizens, the world one of its great men. For sixty years Virchow has devoted his strong mind and his indefatigable energies to advancing the work of mankind. Medicine, anatomy, pathology, and anthropology count him as one of their great men. For long years he has been a power in German political life, always upholding the cause of personal freedom.

"The beginnings of his anthropological work almost coincide with

those of modern physical anthropology in Germany. Among the men who laid the foundation of this science no other one has done more to shape, guide, and foster it than Rudolph Virchow. His interest in anthropology, which was destined to impress his personality upon the young science, developed during the time when he investigated the causes of cretinism and the conditions determining the growth of the skull. The similarities between pathological forms of the skull and those found among different races of man probably led him to researches on the variations of form in the human body. The impetus which he gave particularly to physical anthropology and to prehistoric archeology, was so great that the development of these two branches of science in Germany may be said to center in Virchow's activity.

"Through his eminent faculty for organization, he advanced the whole field of anthropology. He took a leading part in the formation of the German Anthropological Society, of the Berliner Gesellschaft für Anthropologie, Ethnologie, und Urgeschichte, and in the establishment of the monumental *Archiv für Anthropologie*.. The two societies soon became the centers of anthropological activity in Germany. The first named devoted its energies to the study of the physical characteristics and of the earliest history of the Germans. Under Virchow's lead this society undertook to collect statistics relating to the distribution of the color of skin, eyes, and hair in Germany, and observations were recorded in all the public schools of the country. The results of this extended inquiry, which include a cartographic representation of the distribution of types in the empire and a discussion of their probable history, were published by Virchow.

"The Berliner Gesellschaft für Anthropologie, Ethnologie, und Urgeschichte soon became a center to which poured a flood of anthropological material from all parts of the world, and where important scientific questions were discussed. Through its intimate relations with German travelers the society became of valuable assistance in the development of the Berlin Ethnographical Museum. Owing to Virchow's influence the society gradually acquired a large and valuable collection of human crania and skeletons. Among the subjects discussed before the society European archeology always held a prominent place, and Virchow took a lively part in this work which has contributed much to the growth of the prehistoric collections in Berlin.

"As director of the Pathological Institute and Museum of the University of Berlin, Virchow had further opportunities to advance our knowledge of the anatomy of races, and he accumulated much valuable anthropological material in this Institute. His studies of prehistoric archeology brought him also into close contact with students of folklore, and he became one of the founders of the Museum für Volkstrachten.

"It will thus be seen that Virchow took the leading part in the organization of anthropological work in Germany. Therefore it is no wonder that his views have wielded a far-reaching influence, so much so, that without a knowledge of them the peculiarity of German physical anthropology and of German prehistoric archeology can hardly be understood.

XUM

"Most important is his attitude toward the theories relating to the descent of man. His views regarding this question were determined by his fundamental researches on the functions of the cell in the animal organism. He formulated his views in the words that every cell is derived from another cell. No matter how much the forms of the cells may vary, every new form is derived from a previous form. Cells, in the course of their lives, may change their forms according to age and according to the influences to which they are subjected. Such changes take place both in the healthy and in the diseased organism, and often it is impossible to draw a sharp line between normal or physiological, and abnormal or pathological, changes. Virchow himself expresses these views in the words that in reality there is no distinct line of demarcation between physiological and pathological processes, that the latter are only physiological processes which take place under adverse conditions. The cell which changes its form during its lifetime may, therefore, be said to be variable; or, in Virchow's words, it possesses mutability.

"We cannot, in the scope of these notes, enter upon Virchow's numerous investigations bearing upon the anatomy of the races of man. Many of them contain discussions of general principles. His researches on the physical anthropology of the Germans and his description of American crania may be mentioned as specially important.

"His investigation of the anatomical characteristics of the Germans led him naturally to studies in prehistoric archeology to which he devoted much of his time and energies. For a long time forms of the body were considered a characteristic of nationalities. Forms of skulls were described as Teutonic and Slavic; there were Turanian and many other kinds of skulls. Nobody has done more than Virchow to show that this view is untenable. Virchow has always maintained that the limits of human types do not coincide with the dividing lines of cultures and languages. People who belong to the same type may speak different languages and possess different forms of culture; and on the other hand—as is the case in Germany—different types of man may be combined to form one nation.

"These phenomena are intimately connected with the intricate migrations of the races of Europe; with the invasions of southern Europe by Teutonic peoples and the development of north European culture under the influence of the cultures of the eastern part of the Mediterranean sea. The gradual introduction of metals and the disappearance of the culture of the Stone age is one of the phenomena that are of great assistance in clearing up the relations between the ancient inhabitants of Europe. The change of culture indicated by the introduction of bronze indicates that the new culture arose in the far East. This is the reason which induced Virchow to undertake extensive prehistoric studies in Asia Minor and in the region of the Caucasus. His studies in prehistoric archeology, which apparently are so remote from his original anatomical work, are in reality closely connected with his researches on the early history of the races of Europe. Anatomical data alone cannot solve these intricate problems, and Virchow's extensive activity in the field of prehistoric archeology is another proof

of his thorough and comprehensive method which utilizes all the available avenues toward the solution of a scientific problem.

"Physical anthropology and prehistoric archeology in Germany have become what they are largely through Virchow's influence and activity. His method, views, and ideas have been and are the leading ones. His greatness as a scientist is due to the rare combination of a critical judgment of greatest clearness and thoroughness with encyclopedic knowledge and a genius for grasping the causal relation of phenomena."

Dr Virchow's eightieth birthday occurred on the 13th of October, 1901. A festival was held in his honor and distinguished men of science prepared each an address in which the distinguished scholar's contribution to his division of science was set forth. Dr A. Lissauer's paper entitled "Virchow as an Anthropologist" will be found in the *Deutsche Medizinische Wochenschrift*, 1901, No. 41.

Dr Virchow's published contributions to anthropology, large and small, amount to over one thousand. O. T. MASON.

Japanese Linguistic Commission.—*The Dial* for September 1st says:—"We are indebted to a correspondent in Japan, Mr E. W. Clement, for the following interesting paragraph: 'It is generally supposed that languages, like poets, are "born, not made"; and that the changes in a language come, not artificially, but naturally. But we are now treated to the spectacle of an attempt to effect a tremendous reform in a language, many centuries old, by legislative enactment. And the nation which is making this apparently foolish and useless attempt is Japan, which has already often startled the world by its marvellous reforms. And if its wonderful success in legislative reforms in other lines is any criterion in this case, it will succeed in effecting much-needed reform in its language. At the last session of the Imperial Diet of Japan, a sum of money was appropriated for a "linguistic commission." This was appointed in the spring of this year, has held several meetings, and has already arrived at some decisions. It has been decided, for instance, that "a phonographic script" is to be employed; but the much-discussed question, whether it shall be the common Japanese *kana* (syllabic characters) or Roman letters is still on the docket. It is also proposed to reduce the number of Chinese idiographs in common use. Moreover, the differences between the written and the spoken language are to be abolished; and the formal epistolary style is to be reformed. It has also been decided that the whole system of Japanese etymology must be "carefully revised." Even the "problem of local dialects" is to be attacked, and "a standard dialect fixed." It is noticeable that the commission is not afflicted with

trepidity, but is proceeding with the utmost courage to attack the most difficult problems. It is composed of some of the most practical, as well as the most scholarly, men of the Empire; and its work will be watched with the deepest interest, both at home and abroad. And the great changes already effected in the Japanese language since the country was opened are some warrant for believing that this commission will achieve a measure of success.'"

Esthonians of Krasnyj.—O. Kallas, who visited the Esthonians of Krasnyj in the government of Pleskau during the summer of 1901, under the auspices of the Society for Finnish Literature of Helsingfors, has made a brief report of his work in the *Anzeiger der Finnisch-Ugrischen Forschungen* (1902, II, 54). In the Krasnyj district are thirty-five villages in which dwell some 2,000 Esthonians of the Greek-Catholic faith. The first settlement was founded some two hundred and fifty years ago by immigrants from the country about the cloister of Petschur. These people are of considerable interest to the anthropologist and the folklorist by reason of the Russification which they are fast undergoing. Only in eleven villages can a few older individuals be found who are able to speak (imperfectly even, in most cases) their original mother tongue, and a single generation more may see the last of this knowledge disappear. Of folktales, *märchen*, and riddles not much remains. More of old religious ideas and heathen usages seems to have survived, particularly sacrifices and offerings to the dead. The aged persons, who knew and worshiped them in their youth, mourn the passing of the "old gods" before "the Russian gods." Some of the villages bear double names, one Russian, the other Esthonian. Hedged off in a corner of the garden may still be seen what remains of the old heathen "altar," where the *kahi* or offering-ceremony was enacted.

A. F. CHAMBERLAIN.

British Academy.— *The Popular Science Monthly* for April describes the proposed British Academy for the promotion of historical, philological, and philosophical studies, and calls attention to the fact that our National Academy of Sciences was intended to include students of these sciences, but the few representatives have died and no successors have been elected. It seems likely that unless the National Academy decides to give recognition to sciences other than those commonly called natural and exact, the conditions that prompted the establishment in England of a special Academy may lead to a similar undertaking in the United States. The national societies devoted to history, economics, philology, archeology, and the like, fill most of the important functions that were formerly exercised by a national academy, but there

appears to be as much reason for the students of these sciences to unite in a national academy as there is in the case of the natural sciences. There seems also reason to suppose that the societies referred to will form some basis of coöperation as the natural sciences have done by uniting in the American Association. Whether all the sciences should unite in one national academy and in one national association or whether they should divide into two separate groups is certainly a question of considerable importance.

Dr Noël Ballay, whose death was announced early in the year, held many positions under the French government in West Africa, being in 1886 lieutenant-governor of the Gaboon, and later governor of French Guinea. Through him the Museum and the Musée d'Ethnographie received many valuable specimens (skeletons of anthropoids, crania of negroes, etc.), besides the many objects found in the cave of Kakimbu. Dr Ballay was an administrator who took a profound interest in anthropology. These facts are taken from a brief necrological note in *L'Anthropologie*, 1902, XIII, 134, from the pen of R. Verneau.

Library Courtesies.—A noteworthy instance of the courtesy of one institution to another is recalled by the Duc de Loubat's publication last year of the *Codex Fejérváry-Mayer*, an ancient Mexican manuscript, which has been reviewed in these pages. The original, in the Liverpool Free Public Museums, was lent to the Bibliothèque Nationale of Paris in order that the facsimile might be made.

Austronesian.—This term, formed in analogy with divers others in use with reference to the "island world" of the Pacific and its various sections, is employed by Father W. Schmidt, in a recent article on the relationship of the languages of New Guinea, published in the *Zeitschrift für afrikanische, ozeanische und ostasiatische Sprachen* (Berlin) for 1902, to designate the extensive linguistic stock comprising the Indonesian, the Melanesian, and the Polynesian tongues, but excluding, in all probability, the Papuan languages, which seem to stand apart from this stock. A. F. C.

Madagascar Academy.—The *Internationales Centralblatt für Anthropologie* states that at Antananarivo there has been established, in imitation of the Académie Française, a "Madagascar Academy." Among its chief objects are the ethnography of Madagascar, archeological investigations, the collection of old manuscripts, and especially the study of the native dialects. Besides Frenchmen the Academy includes among its members the native investigators Rabesihanaka, Randriamifity, and Andriamanantsity. This recognition of the genius

of the Malagasy is a credit to the French authorities in the great African island and might well be imitated elsewhere. A. F. C.

Finno-Ugrian Ethnographical Atlas.—At a meeting of the Finno-Ugrian Society on February 12, 1902, Professor Setälä proposed the preparation of an atlas (with explanatory text) of the present habitats of the Finno-Ugrian peoples. This work could be accomplished only by the joint efforts of capable investigators in the various countries concerned. The society approved of the project and recommended all investigators in the field under its auspices to collect material to this end. A. F. C.

DR LEHMANN NITSCHE, of La Plata, the South American archeologist, has been made an Officier d'Académie by the French government.

DR ANTOINE-EDOUARD FOLEY, who died at Andresy, October 25, 1901, aged 80, was from 1875 to 1888 a prominent member of the Société d'Anthropologie de Paris. He was one of the thirteen executors of the will of Auguste Comte.

ANNOUNCEMENT is made by The University of Chicago Press of the appearance of another preprint from The University of Chicago Decennial Publications, the document just ready being *Physical Characters of Indians of Southern Mexico* (75c., net) by Prof. Frederick Starr. This series was planned in connection with the celebration of the completion of the first ten years of the corporate existence of the University, the purpose being to set forth and exemplify the material and intellectual growth of the Institution during the first decade. The series, which is in an advanced stage of preparation, will consist of ten regular volumes issued in quarto form and about fifteen supplementary volumes in octavo form.

THE QUIVIRA HISTORICAL SOCIETY, "an association of explorers, authors, and ethnologic students," unveiled on August 12th, a granite obelisk at Logan Grove, near Junction City, Kansas, to commemorate the discovery by Francisco Vasquez Coronado, in 1541, of the early Wichita Indian country in Kansas, known as the Province of Quivira, and of the identification of the country a few years ago with the original province.

ANDRÉ SANSON, honorary professor in l'École Nationale de Grignon and in l'Institut National Agronomique, also vice-president of l'Association pour l'Enseignement des Sciences Anthropologiques and a delegate from the Société d'Anthropologie de Paris to the administrative committee of l'École d'Anthropologie, died at Saint-Palais, near Royan, France, on August 28th.

AN OFFICIAL CHAIR of anthropology has been founded at l'École des Sciences Sociales de Bruxelles, which is attached to the University, and Dr Émile Houzé has been selected to occupy it. Dr Houzé is president of the Société d'Anthropologie de Bruxelles, and since 1884 has conducted, as a fellow of the University, its course in anthropology. A laboratory and a small museum have been established in connection with the chair.

MR HENRY LING ROTH has been granted a civil pension of seventy pounds in recognition of his services to anthropology. Mr Roth is joint author with Andrew Lang of *The Natives of Sarawak and British North Borneo* (2 vols., New York, 1896); he wrote also *A Sketch of the Agriculture and Peasantry of Eastern Russia* and a *Bibliography and Cartography of Hispaniola* (London, n. d.).

A PORTFOLIO of twenty water-colors depicting Indian life by the late Col. Julian Scott, of Plainfield, New Jersey, has been purchased by the American Museum of Natural History. The pictures were painted from life while Colonel Scott was in Arizona and New Mexico in 1890 gathering material for the report on Indians published by the Eleventh Census.

THE UNITED STATES NATIONAL MUSEUM has recently published "Instructions to Collectors of Historical and Anthropological Specimens," by W. H. Holmes and Otis T. Mason, of its department of anthropology. The bulletin is "especially designed for collectors in the insular possessions of the United States," and may be had on request.

NORDENSKIÖLD.— The second number for 1902 of *Ymer*, the organ of the Svenska Sallskapet for Antropologi och Geografi, is dedicated to Nordenskiöld, the great Scandinavian explorer and man of science. The issue consists of a sketch of his life, accounts of his activities as explorer, geographer, cartographer, geologist, mineralogist, etc.

ARSÈNE DUMONT.—The death of Arsène Dumont, in Paris, has been announced. M. Dumont was author of *Dépopulation et Civilisation*, *Natalité et Démocratie*, and *La Morale Basée sur la Démographie*, besides many contributions to scientific periodicals on general anthropology, archeology, and sociology.

DR EDMUND VON FELLENBERG, conservator of the ethnologic and prehistoric division of the Museum in Bern, died there on the tenth of May, aged sixty-four years. Dr von Fellenberg was widely known as an anthropologist, and in personal intercourse was esteemed a man of extraordinary amiability of character.

XUM

A HESSIAN FOLKLORE ASSOCIATION, with headquarters at Giessen, has been established recently. As the first publication of the Society an imposing volume, *Hessische Blätter für Volkskunde*, containing contributions by Usner, Dieterich, Drews, and Strack, has been issued under the editorship of Adolf Strack.

BY A DECISION of June 20th last, the Queen of Holland nominated Dr J. D. E. Schmeltz, Director of the Royal Ethnographical Museum at Leiden, as the delegate of the Netherlands to the International Congress of Americanists, to be held in New York, October 20 to 25.

PROF. D. J. CUNNINGHAM, F.R.S., will give before the Anthropological Institute of Great Britain and Ireland the third annual Huxley memorial lecture on October 21, his subject being "Right-handedness and Left-brainedness."

DR J. HEIERLI, Docent in Prehistory in the University of Zürich, has been given by the philosophical faculty of that institution the honorary degree of doctor in recognition of his investigations in the prehistoric archeology of Switzerland.

ANTHROPOLOGY AT SWEDISH UNIVERSITIES, ETC. (1902). — At Upsala, O. Almgren will lecture twice a week on "Prehistoric Cultures of Europe." At the National Museum, Stockholm, Prof. O. Montelius will lecture once a week on "Life in Sweden in Heathen Times."

OTTO HELM, Ph.D., died at Danzig, on March 24th last, aged 76 years. He was widely known through his chemical investigations of prehistoric bronzes, on account of which he was awarded an honorary doctorate by the University of Königsberg.

THE IMPERIAL ARCHEOLOGICAL COMMISSION at St Petersburg has been issuing a new periodical in addition to its *Annual Report* and the *Materials for the Archeology of Russia*, of which latter twenty-five volumes have appeared.

PROF. DR E. BÄLZ celebrated at Tokio, Japan, on November 22d last, his twenty-fifth anniversary as instructor in the University of Tokio. Dr Bälz has relinquished his docentship and will devote some years to anthropological study in the islands of eastern Asia.

DR JOHANN JANKO, director of the ethnographic division of the National Museum at Budapest, died on July 28, aged 35 years. Dr Janko was the ethnographer of the expedition of Count Zichy.

THROUGH THE GENEROSITY of Mr Abraham Abraham, of Brooklyn, Cornell University has acquired the Egyptological and Assyriological library of the late Prof. August Eisenlohr of Heidelberg.